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EDITED BY WILLIAM HUNTING, F.R.C.V.S.

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THE SOUTH AUSTRALIAN VETERINARY SERVICE.

An interesting official report by the Chief Inspector of Stock for South Australia, Mr. R. John Needham, is to hand. It concerns the working of the Live Stock and Brands Department for the year ending June 30th, 1910, and is noteworthy for the fact that that period has witnessed the creation of a Government veterinary staff for South Australia. Two veterinarians were appointed in September, 1909—Mr. J. F. McEachran, M.R.C.V.S., as Government Veterinary Surgeon, and Mr. C. A. Loxton, a graduate of the Melbourne Veterinary College, as Assistant Government Veterinary Surgeon. Much of the Chief Inspector's own report concerns the work of the veterinary staff, whose appointment he affirms to have "much strengthened" his Department, and whose "valuable assistance" he appears to fully appreciate. But perhaps the best evidence of the value of the veterinary staff is to be found in the appendices to the report. These are two official reports submitted to the Chief Inspector by Mr. McEachran. One is a general report, covering the whole work of the veterinary staff up to June 30th, 1910. The other is a special report dealing with a very important subject—the Governmental examination of stallions for the season ending August 31st, 1910.

This Governmental "examination of stallions three years old and over for soundness and suitability for stud service" is quite a new measure in South Australia, and an urgently needed one. The State of Victoria commenced the examination of stallions in 1907, and naturally many of the animals rejected by the Victorian examiners were sent to South Australia, greatly increasing the number of unsound horses there. Probably from recognition of this fact, the great majority of South Australian horse owners and farmers strongly support the system of stallion examination; and Mr. McEachran's figures show how necessary its introduction was.

Altogether Messrs. McEachran and Loxton attended 50 shows, examined 470 stallions, and rejected 136. Thus 28·75 per cent.—not far off one-third—of the animals shown were unsound ones. The chief unsoundnesses met with were sidebone and ringbone in draught horses, and bone spavin and ringbone in light animals. During the year, then, the veterinary surgeons have done good work in exposing the amount of unsoundness in the State, and seem to be paving the way for much more effective measures in future. Stallions rejected at shows, though without Government certificates, may still at present ply for hire, and the competition of the cheap unsound horse is bitterly resented by the owners of certificated animals. An Act is therefore being talked of which shall make it compulsory for all stallions used for stud purposes to be certificated as regards soundness and suitability, but it may be some time before this is passed.

Many horseowners support the proposal, which is endorsed by both the Chief Inspector and Mr. McEachran; but one important point, which may cause considerable delay, is that any such Act ought to be made uniform throughout the Commonwealth, and not limited to one State. The Chief Inspector suggests a speedy conference of Chief Inspectors of stock and Government veterinarians with a view to uniform legislation.

Turning to the general work of the veterinary staff, it is not necessary to say much regarding animal diseases. South Australia is happily comparatively free from serious epidemic disease. Pleuro-pneumonia is now almost non-existent, and tuberculosis decreasing; but equine cerebro-spinal meningitis, undoubtedly caused by ingestion of damaged forage, though the actual toxic agent is unknown, is not rare, and its high mortality renders it a serious problem. Bovine contagious abortion exists in some of the herds; but apparently is not yet common, and may never become so. One bovine and ovine disease which is common—contagious ophthalmia—has been found easily curable in the earlier stages; and owners are now in a position to eradicate it for themselves. And this leads us to the last department of the activity of the veterinary staff—the giving of advice and assistance to owners regarding both simple and serious diseases of stock, and the deliverance of veterinary lectures. A good deal of lecturing has been done—including a course at an agricultural college—and the demand for it is increasing. Altogether the veterinary staff has commenced its existence very auspiciously.

QUITTOR.

By W. R. DAVIS, Enfield.

In *The Veterinary Record* of February 4th Prof. Gofton expresses surprise that some of the speakers who took part in the discussion of the paper read before the Central Veterinary Society by Mr. Hunting should have advocated the use of the hot iron and caustics in the treatment of quittor. Professor Gofton evidently thinks these methods archaic and barbarous, and from what he says about the use of the scalpel one may gather that in every case of quittor he would proceed to remove the lateral cartilage in whole or in part. On the other hand, Prof. Cadiot states in his "Traité de Therapeutique Chirurgicale," page 831, "Caustic injections act specially in destroying infectious elements in the area of necrosis. Little by little the suppuration and the swelling diminish, the fistulæ fill up, and in general the cure is obtained at the end of two or three weeks. This method does not merit the

epithet "infallible," but it has notably reduced the indications for the operative treatment. Employed early when the necrosis has not passed the middle zone of the fibro-cartilage it succeeds in most cases." Surely there is no occasion for Professor Gofton to feel surprise that speakers should advocate a treatment that deserves such support from a man like Prof. Cadiot.

I am quite convinced that the stripping of the wall and the extirpation of the lateral cartilage is quite unnecessary in the large majority of cases of quittor. If the pus issues in the posterior or middle zone, the wall below the orifice should be rasped to a pellicle, a probe introduced to ascertain the direction of the sinus, and then a curved hot iron pushed through the thin wall up to the opening. A few caustic injections may be given afterwards, and a cure nearly always follows.

Extirpation of the lateral cartilage is not even always necessary when the anterior portion of the cartilage is affected.

About six months ago I was asked by a farmer to look at a roan cob that he had bought from a London firm (one of his hay customers). It was lame from a quittor on the outside of the fore leg—perhaps the worst position in which to have quittor. There was very considerable swelling, and the purulent orifice was placed anteriorly. The disease was evidently of old standing. I did not think the "kitchen poker" was to recommend in this case, so I suggested casting, chloroforming, stripping the wall, and removing the cartilage. The owner, however, would not hear of such an operation, and I had to fall back on my obsolete methods. I do not think the cob was kept in the stable more than a week; it was then turned out to grass for a couple of months, when all lameness, swelling, and pus formation were found to have disappeared, and the animal was put to work. I frequently see it in harness—I saw it to-day—and the cure is perfect.

In face of cases like this it is absurd to decry the methods of treatment adopted. When Dr. Slop was puzzled to know how children came to be got into the world before the introduction of the forceps etc. which his green bag contained, said Uncle Toby "You should have seen, Dr. Slop, what prodigious armies we had in Flanders." Prodigious numbers of quittors had been cured before extirpation of the lateral cartilage was introduced and since its introduction.

Resection of the ligamentum nuchæ in poll evil, of the supra-spinous ligament in fistulous withers, of the plantar aponeurosis in gathered nail is no more necessary in the vast majority of cases of these maladies met with in practice than is extirpation of the lateral cartilages in quittor.

Prof. Gofton tells us that he systematically carries out the practice of stripping the separated horn in all cases in which pus has appeared at the coronet between hair and hoof. I, for one, should be sorry to follow him in the practice, and I distinctly state again that in the vast majority of such cases such a procedure is absolutely unnecessary, and leads to useless mutilation of the foot.

SOME UNUSUAL COMMUNICATIONS AND BRANCHES OF NERVES.

By J. Share Jones, M.Sc., F.R.C.V.S.

The Musculo-spiral nerve.—A normal musculo-spiral nerve in the horse is easily recognised during the dissection of a subject by the fact that it is much the thickest of the nerves given off by the brachial plexus. Leaving the plexus, it lies at first on the deep face of the subscapularis muscle and runs downwards and backwards behind the median nerve and its accompanying vessels. It crosses the long branch of the subscapular artery and passes on to the surface of the teres major muscle. Crossing the artery to the latissimus dorsi it runs parallel to the brachial vessels. Where the deep humeral artery is detached from the brachial the nerve passes in front of the large head of the triceps extensor cubiti muscle and between it and the brachialis anticus.

Following the posterior border of the latter muscle, it accompanies the long branch of the deep humeral artery around the musculo-spiral groove to the front of the elbow joint. It is here deeply placed between the extensor metacarpi magnus outwardly and the brachialis anticus inwardly and is in company with the anterior radial artery. It runs down the anterior surface of the shaft of the radius covered by the extensor pedis muscle, and ultimately splits into two filaments before entering the extensor metacarpi obliquus where it terminates.

It gives off the following branches:

I. A thick short branch before disappearing in front of the caput magnum. This branch splits into an ascending set of fibres which are distributed to the caput magnum, and a descending set which pass to the caput medium or parvum, or the inferior portion of the magnum.

II. A long slender branch which penetrates the scapulo-ulnaris on its deep face.

III. At the back of the humerus, filaments are distributed to the middle head of the triceps extensor cubiti and to the anconeus, and a number of small descending cutaneous branches are also detached.

IV. At the front of the limb large branches pass to the extensor pedis, extensor metacarpi magnus and extensor suffraginis.

V. A small branch passes between the extensor pedis and radius near the radio-ulnar arch, and enters the flexor metacarpi externus and extensor suffraginis.

The nerve thus supplies the extensors of the elbow, knee, fetlock, and interphalangeal joints, and is sensory to the skin of the upper part of the forearm.

Case 1. The subject was a bay gelding 10 years old, and 14 hands high.

The musculo-spiral nerve (Fig. I, 2) just above the point where it crossed the subscapular artery, gave off a branch which curved downwards immediately behind the parent nerve over the teres major muscle. After the musculo-spiral nerve disappeared

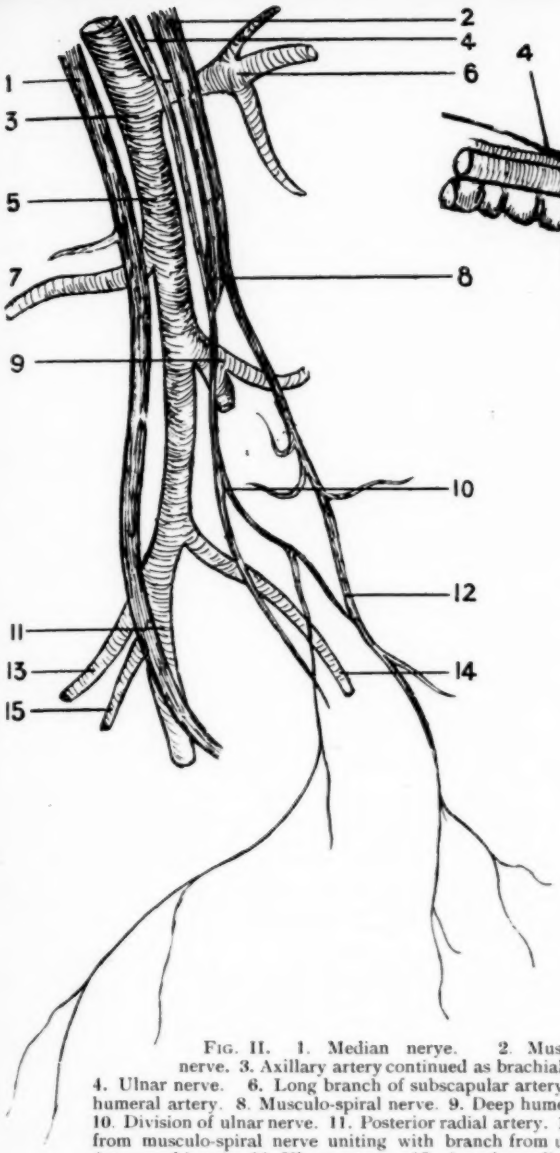

FIG. II. 1. Median nerye. 2. Musculo-spiral nerve. 3. Axillary artery continued as brachial artery (5). 4. Ulnar nerve. 6. Long branch of subscapular artery. 7. Prehumeral artery. 8. Musculo-spiral nerve. 9. Deep humeral artery. 10. Division of ulnar nerve. 11. Posterior radial artery. 12. Branch from musculo-spiral nerve uniting with branch from ulnar. 13. Artery to biceps. 14. Ulnar artery. 15. Anterior radial artery.

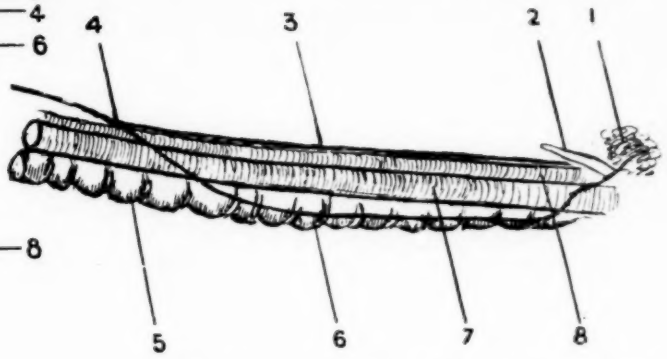

FIG. III. 1. Prescapular glands. 2. Ascending branch of inferior cervical artery. 3. Left vagus. 4. Branch leaving vagus. 5. Trachea. 6. Accessory branch of vagus lying on side of trachea. 7. Left jugular vein. 8. Left common carotid artery.

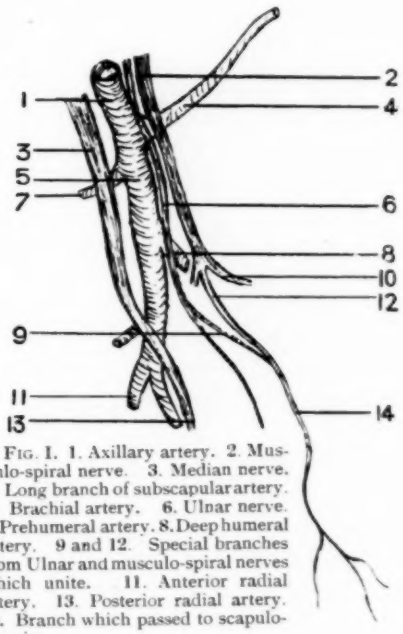

FIG. I. 1. Axillary artery. 2. Musculo-spiral nerve. 3. Median nerve. 4. Long branch of subscapular artery. 5. Brachial artery. 6. Ulnar nerve. 7. Prehumeral artery. 8. Deep humeral artery. 9 and 12. Special branches from Ulnar and musculo-spiral nerves which unite. 11. Anterior radial artery. 13. Posterior radial artery. 10. Branch which passed to scapulo-ulnaris.

Unusual Nerve Distribution. Mr. J. Share-Jones' notes, p. 542.

Anthrax. Mr. F. Somers' cases.

in front of the large head of the triceps extensor cubiti, the branch passed down the limb behind the ulnar nerve.

As it crossed the deep humeral arteral it divided into;—

1. A branch which was distributed to the scapulo-ulnaris muscle (I, 10), and

2, A branch which joined a branch detached from the ulnar nerve on the surface of the caput parvum (I, 9 and 12)

The nerve so formed (I, 14) followed the course of the ulnar nerve to the inner side of the olecranon process, distributed twigs here to the scapulo-ulnaris muscle, and was ultimately traced to the skin on the inner aspect of the elbow joint.

Case II.—The subject was an aged bay gelding, 13-1 hands high. The musculo-spiral nerve at the origin was thicker than usual.

The first branch detached left the parent nerve as it crossed the long branch of the subscapular artery, *i.e.* on the line of division between the subscapularis and teres major muscles, and passed downwards on the surface of the large head of the triceps extensor cubiti. It was at first placed behind the parent nerve, but after the latter disappeared behind the humerus the branch ran down behind the ulnar nerve. As it crossed the caput magnum it detached a very slender filament, which was distributed to the middle third of this muscle to reach which it curved upwards and forwards. It penetrated the anterior border of the muscle in company with the large branch of the deep humeral artery, by which this muscle is supplied.

Half an inch lower down the limb another filament was detached from this branch, passed backwards and entered the caput magnum on its inner face and near its posterior border.

After a further course of an inch and a half the branch detached a third filament, which was very slender. It passed horizontally forwards and was distributed to the caput parvum.

The main branch then passed to the inner side of the olecranon processes of the ulna, under cover of the scapulo-ulnaris muscle, and on a level with the elbow articulation it was joined by a nerve which was somewhat more slender than itself, and which was found on further dissection to come from the ulnar nerve (II. 12).

The ulnar nerve (II. 4) took the usual course down the limb from the brachial plexus in front of the musculo-spiral nerve and behind the axillary and brachial arteries. Just below the point where it crossed the deep humeral artery it gave off an unusual branch (II. 10 . This ran obliquely downwards and backwards behind the main nerve, and at the inner side of the olecranon process it was found to divide into two portions, the larger of which joined the branch derived from the musculo-spiral described, in the manner indicated above. The smaller passed forwards to the front of the limb, and was traced to the skin covering the middle third of the forearm.

The above two cases are of interest inasmuch as similar abnormal communications between the principal nerves of the limbs may possibly account for many of the peculiar symptoms which are occasionally associated with otherwise easily diagnosed cases of lameness.

In two dissecting-room subjects, one a black gelding and the other a grey mare, both aged and about 14 hands high, an accessory branch of the vagus was traced.

It was detached from the vagus of the left side on a level with the fourth tracheal ring. It was extremely thin and thread-like, and passed from the parent nerve downwards and backwards, crossing the outward side of the left common carotid and jugular. It reached the left side of the trachea along which it ran in a wavy manner to the base of the neck, being bound to the trachea by a fold of delicate fascia. It next took an upward course, leaving the trachea and passing again over the outer surface of the jugular and carotid, and on the deep face of the inferior portion of the scalenus muscle.

Running obliquely backwards it was traced across the root of the ascending division of the inferior cervical artery to near the prescapular lymphatic glands, where it was lost.

ANTHRAX AMONGST WILD ANIMALS IN CAPTIVITY.

The whole of the animals forming the travelling managerie known as "Bostock and Wombwells," were alive and well, and touring the country from the South day by day without a mishap, when on opening the cages on the morning of March 26th, 1910, at Bolton, Lancashire, two racoons, one coypu, and one English badger were found dead. Poisoning was suspected, and the carcases were forwarded to Prof. McCall, of Glasgow.

Some of the remaining animals were dull and off colour, and next day, the 27th March, two pumas and one leopard were found dead, apparently having died suddenly from suffocation. In the meantime anthrax was discovered in the blood of the dead animals by Professor McCall.

It was at once to be seen that the disease had assumed very dangerous proportions, as animals such as pumas are costly, rare, and not often in the market. The show being constantly on the move, it was hoped that no more animals would be lost, but on arrival at Darwen on March 30th, unmistakable indications of intense distress and suffering was shown by the Polar bears, three in number. Messrs. Bostock and Wombwell at this stage wired to Leeds for me, as I had done work for them for years in various ways.

I arrived at the show within a few hours, and saw at once that the large Polar bear was suffering from "gloss-anthrax." The tongue was protruding from the mouth for about ten inches, was greatly swollen, and was changing colour from pink to purple and then bluish-black, particularly at the tip. The swelling increased so much that it was impossible for the tongue to go back in the mouth. The mucous membrane was raised in the form of blebs which were discharging a dark fluid.

There were several animals in the same cage

walking round, including hyænas, Polar and brown bears, but after some difficulty the affected Polar bear was isolated by means of a sliding partition. Great relief seemed to be given by the pouring of cod liver oil on the tongue, and the syringing of the mouth with solutions of chlorate of potash. The animal seemed to get worse, and later in the evening had a most dejected appearance. On my advice it was shot.

Another Polar bear was also ill, but the symptoms were not nearly so marked, and with cod liver oil and other treatment as described, was pulled through and is now quite better. A third Polar bear died of anthrax.

On the same day I inspected every animal in the show, and found many suffering from anthrax. The two lions were very sickly, were hanging their heads, had bloodshot eyes, and a large swelling on the dewlap. The throats were swollen, and they were quite off their food, but they seemed able to resist in some way the B. anthracis, and escaped, and in a week or ten days were quite better, although poor in condition.

A lioness which was affected was not so fortunate, dying at Skipton.

On April 8th the animals were quite free from disease of any kind. They had all been fed on raw flesh, and undoubtedly that flesh was anthracoid. Every investigation has been made by the police and the Board of Agriculture to trace the origin of this outbreak of anthrax, but all to no purpose. The raw meat supply was obtained from several sources.

Some of the birds also were given pieces of raw flesh, but only one was affected, a large vulture. This bird had a most painful appearance; the feathers stuck out prominently like pins on a pincushion, there was the drooping head, muscular twitchings over the body, the eyes bloodshot and partly closed, and every appearance of misery was shown. The bird huddled up in the corner of the cage for a few days, and then changes gradually took place, by slow degrees the bird recovered, and in ten days was better.

Every precaution of an antiseptic nature was taken from the very first. Antiseptics were used on the floors of the cages, and the excreta mixed with quick-lime and taken direct to the refuse destructor. The attendants were warned of the possible danger of inoculation, and were most cautious.

The noticeable indications of a general character were the lymphatic glands of the mouth and pharynx being affected in every case, and in giving my opinion of the cases as a whole, I am compelled to arrive at the conclusion that every animal that died had anthrax (which was proved by microscopical examination), and those that lived had anthracoid conditions which were not necessarily strong enough to prove fatal.

The following animals died; two pumas, one leopard, two racoons, one coypu, one English badger, one ant-eater, and two Polar bears.

The following had marked symptoms of anthrax as described, but got well again: two lions, two leopards, one Polar bear, one vulture, and one or two smaller animals.

During a special visit to Glasgow—through the courtesy of Prof. McCall and Prof. J. R. McCall, I had the opportunity of examining the blood microscopically of the animals that died on the earliest dates of the outbreak.

On investigating the veterinary literature of our times I find no previous records of outbreaks of anthrax in wild animals in captivity; and strange to say the Board of Agriculture have no legal powers to deal or interfere in any way with "wild animals in captivity," and in this outbreak could take no part whatever, as the Anthrax Act does not apply in any way to those animals as none of them are scheduled—although they tried in vain to trace the source of contamination which certainly had arisen from flesh supplied to the animals direct. However, in association with Mr. H. Birkett (on behalf of Mr. E. H. Bostock, the proprietor), every courtesy was shown to the Medical Officers of Health, the Sanitary Inspectors, and the Inspectors of the Board of Agriculture, who showed great personal interest in a most unusual, dangerous, and costly outbreak of perhaps the most terribly fatal disease that occurs amongst animals, either domesticated or otherwise.

FRANK SOMERS.

4 Wade Lane, Leeds.

AN UNUSUAL ABSCESS.

By ARTHUR NEW, M.R.C.V.S., Ashton-under-Lyne.

On January 28th I was asked to examine a well-bred shorthorn milch cow, and found a large firm swelling on the left hand side, along the lower half of chest wall behind the shoulder and elbow. The animal was very lame and had a great difficulty in carrying the leg forward. She was slightly feverish, and off her food.

Gave some tonic medicine, and advised plenty of fomentation with comfrey water, and application of stimulating liniment

After seven days treatment the abscess pointed, and upon lancing it a large quantity of thin fœtid pus escaped. Upon introducing the finger I felt some broken down tissue, so I opened the sac enough to admit my hand, and after some little time removed a large mass of broken down connective tissue and muscle. Upon again exploring the wound I felt a hard sharp substance apparently coming between the ribs, which with some difficulty I removed, and found it to be a piece of umbrella frame, 5½ inches long and very sharp at one end.

The wound was treated with antiseptics and digestives and rapidly healed. The animal made a good recovery.

Cases of cows swallowing pieces of wire and hard substances in the hay are common, and in my practice I have frequently to have slaughtered valuable cows from this cause. In all the cases I have previously seen the wire passes forward from the stomach through the diaphragm and lungs

towards the heart, frequently even penetrating that organ, and the chief symptoms noted being frequent tympany, dropsy of the dewlap, and throat jugular, and irregular pulse. That this piece of umbrella frame was swallowed with the food is almost certain, as only about an inch of the pointed part projected outwards between the ribs, and required some considerable amount of traction to remove it.

THE CENTRAL VETERINARY SOCIETY.

An ordinary monthly meeting of the Society was held at the Royal College of Veterinary Surgeons, Red Lion Square, on Thursday, February 2nd, 1911, the President, Mr. W. S. Mulvey, in the chair. The following fellows were present: Prof. G. H. Wooldridge, Messrs. R. J. Foreman, A. L. Butters, S. H. Slocock, J. Willett, James Rowe, T. S. Price, A. Crabb, Wm. Reekie, G. H. Livesey, Major W. B. Edwards, A. Neish, W. Willis, N. Almond, J. B. Hare, F. G. Samson, W. Perryman, R. Eaglesham, W. L. Harrison, F. O. Parsons, S. H. Nye, Prof. J. Macqueen, C. H. Sheather, J. A. Gosling, F. W. Chamberlain, R. Bryden, F. W. Willett, Prof. H. A. Woodruff, and Hugh A. MacCormack, hon. sec.

Visitors: Messrs. R. B. Wood, L. Mitchell, A. D. MacGregor, S. L. Slocock, J. J. M. Soutar, A.V.C., Capt. F. C. O'Rorke, P. Bell, D. A. E. Cabot, G. Tates, F. H. Sanderson, B. Gorton, and T. C. Graves.

The minutes of the previous meeting were taken as read and confirmed.

Correspondence.

Letters regretting inability to be present were announced from Mr. E. Lionel Stroud, Mr. Barnes, and Lieut.-Col. Blenkinsop.

Morbid Specimens.

Mr. Samson exhibited the heart of a cow, a well grown, half-bred, cross shorthorn, Ayrshire cow, that had been on the premises for over twelve months without showing any signs of having anything the matter. She was taken ill, and given linseed oil; on the third day he was called in, and on the fourth day gave a strong purgative. From the very first the temperature was 105 and 106; sometimes she would go in the morning icy cold, and two or three hours later would be quite warm, and then cold again. Her breathing became more laboured, and turpentine was applied to her sides, and later on a second dose with mustard, but she gradually got worse, and about the tenth day he heard over the heart a sound such as the tinkling of a glass in water. The head was stretched out and a peculiar grunt, as with contagious pleuro-pneumonia, and if that disease had been about he would have condemned her for that. The animal died a fortnight later. A careful post-mortem examination showed nothing but the diseased heart, which was not only diseased in the valves but the outside of the heart was covered with a thick, leather-like, rough membrane, and the heart was discoloured. The left lung was somewhat consolidated and slightly attached to the side.

Prof. Macqueen exhibited a very old ear-cropping clamp which had been presented to him by Dr. Clement Stephenson, of Newcastle-on-Tyne, and which he considered was over two hundred years old. He had brought it to show what instrument makers could do in those days, and he thought it was very well made and finished. The surface was graduated so that the two ears could be cut off at the same line.

Prof. Macqueen also exhibited the larynx of a horse he had operated upon on September 9th last year for roaring. It was, he believed, the first operation for roaring that had been done by means of cauterisation. The procedure was the same up to and including the opening of the larynx, then a thimble-headed cautery was inserted in the left ventricle, and the current having been applied the mucous membrane was destroyed by means of the cautery. The cautery was then allowed to cool and inserted in the ventricle on the sound side and allowed to act for about the same length of time as on the unsound side. After operation the horse was kept for thirteen weeks and four days, and was destroyed on account of incurable lameness. In the specimen the cavity occupied by the ventricle on the left side had completely filled up, but on the sound side there was very little alteration in the ventricle, which was about as large as it was in the natural condition. The larynx was opened post-mortem through the roof so that the inner surface of the cricothyroid membrane could be seen, and there was very little evidence of the incision, the healing having been very satisfactory. He was indebted to his colleague Prof. Shave for the idea of using the cautery in this operation for roaring.

The President exhibited a case of thrombosis of the superficial abdominal arteries of both sides of the sheath of the horse. The animal was a large brougham horse, fifteen years old, and three years ago was noticed to have swellings on both sides of the sheath, about four inches from the end. He was treated, and the swellings disappeared. Eighteen months ago they reappeared and were again treated with biniodide of mercury, and the swellings again disappeared. Early in January of this year he saw the animal for the first time, and it had a large swelling on the left side of the sheath, and a rather smaller one on the right, and there was considerable œdema. Towards the end of the month the horse got worse and refused his food, and the owner decided to have him destroyed. The swelling was hard and felt fibrous, and the corded blood vessels could be distinctly felt at the back, evidently running along the abdomen. The heart and liver were slightly fatty but the aorta was perfectly normal.

Mr. T. Salusbury Price exhibited a padded wooden apparatus used to support the neck of a horse with dislocated cervical vertebræ. The vertebræ were dislocated about the middle of the neck when the horse got cast in his stall. It was a bad case, and the animal had to be slung, but he was unable to hold his head up to take food. In fact for several days, until the apparatus was applied, the horse rested his head on his incisor teeth on the floor, and bolsters of straw had to be placed under his head to prevent bruising. With the apparatus, however, the case went on remarkably well and in a month or five weeks was perfectly right. The neck was bound with a flannel bandage about a foot wide and six yards long, and the apparatus fixed over it. The apparatus was practically a double splint for the neck, the two sides being attached by iron bolts. It was first applied with moderate pressure, and the bolts were tightened up a little every two or three days, the flannel distributed the pressure evenly. With this support the horse was able to raise his head without further assistance. In four or five weeks when the apparatus was removed the horse could raise his head quite easily and move it about quite freely. I may also state that the owner, the carman, and head horsekeeper wanted the horse killed.

Professor Woodruff exhibited the larynx of a horse that had been operated upon for roaring. The animal died of an abscess lower down in the trachea, about eight weeks subsequent to the operation. The larynx showed how completely adhesion had taken place on the side operated upon, and it was, Professor Woodruff thought, difficult to understand why, with such cicatrisation, assuming a similar result to follow in most cases, an animal should continue to make any noise. This particular animal was never really tested.

Professor Woodruff also recorded the case of a bay mare, nine or ten years old, which had a foul discharge from the vagina lasting for some months. On vaginal examination a firm round mass was felt in the body of the uterus, and it was said to be increasing in size. The mare was feeding well, and with the exception of some loss of condition, and the discharge, was apparently in normal health. On the 5th October, a careful examination was made both *per vaginam* and *per rectum*, and a large mass the size of a football was found, almost certainly in the body of the uterus, apparently solid, not very movable. The external os uteri was open, but the mass was found to block the passage and prevent the fingers going into the uterus freely. The practitioner with whom he saw the case suggested removal of the uterus, which was rather a big undertaking with such a large mass. Thinking there was just a possibility that that apparently solid tumour was really fluid under pressure, he passed a trocar and canula through the os uteri and plunged it into the mass, when about a gallon and a half of fluid came away—white, turbid, evil-smelling fluid. Examination per rectum now revealed nothing, and it seemed as though the whole collection had been removed. Within two and a half hours the mare was dead. For one and a half hours she seemed perfectly well—then an attack of acute abdominal pain came on, and the mare became quite violent, as though she might have had a twist. The door of the box where the mare was standing was bolted into the sill of the floor at the bottom, and the mare, in throwing herself against the door, knocked the door away from the bolt, and impaled herself on the end of the bolt, which went through the abdomen into the intestines. From the shock, partly of the operation and partly of the perforation, she died. On post mortem it was found that the trocar and canula had gone through the os uteri, and, the uterus being twisted on itself, had come out into the abdominal cavity and then gone further on into the uterus round the kink. The kink of the uterus had allowed the trocar to pass into the abdominal cavity, and so allowed some of the fluid to be voided there. The uterus still contained something like a couple of gallons more of the fluid, and two incisor teeth and the distal end of a long bone, probably a metacarpal or metatarsal bone, were found. The mare, no doubt, had had a foal at some previous time, and embryotomy had been performed and part of the foal had been left behind, and the mare had had a chronic septic metritis lasting for some years. Such a history was wanting, in fact the last owners had no idea that the mare was, or had ever been, in foal.

Mr. LIVESEY mentioned the case of a cat that had been brought to him in a mopish condition with saliva dribbling continually from the mouth. He kept the animal under observation, and on opening the mouth on the third day, found well marked ulcers all round the free border of the tongue. After a few days, without any treatment at all, the ulcers began to heal up, and in a fortnight the animal was perfectly well. The remarkable thing was that during the following six weeks he had no less than nine or ten similar cases. The illness appeared to start first of all with the cat feeling out of sorts and refusing food. Then he began to salivate without sneezing or coughing, and auscultation showed nothing. In the last condition the coat became spiky, and the animal became unthrifty and emaciated. On the fifth day well marked ulcers developed, not necessarily on those portions of the tongue which came against the teeth. He tried several remedies, but could not say the cats that were treated did a bit better than the cats that were left untreated. Of the nine cases he had, one died, but that was a very old cat in very poor condition. In one case three cats were affected with the disease in the same house at the same time. He had placed healthy cats with diseased ones, but there had been no infection.

Mr. SLOCOCK said he had no doubt Prof. Woodruff's case was one of retention of the foetus. and he did not think it was necessary at all for any part of that foetus to have been removed. There were very many cases on record, and he had had one or two in the cow. In one case a cow gave signs of labour which passed off, and the animal was fattened and sent to the butchers, and a small collection of bones were found. He believed it was an ordinary experience with butchers to find such bones. Mr. Samson's case he thought was very much like traumatic pericarditis.

Prof. WOOLDRIDGE said the method adopted by Prof. Macqueen for roaring appeared to be an extremely useful method of bringing about the desired end. The ventricle of the left side seemed to be quite closed. By the use of the electric cautery in the ventricle there was less likelihood of getting hæmorrhage or doing injury to the adjoining structures. He thought as a matter of historisal accuracy it ought to be put on record as the first reported case of its kind. With regard to Prof. Woodruff's question, why it was that in some cases where there was adhesion of the ventricle the horse still remained a roarer, the answer in many cases was fairly obvious. that the roaring was not due to any trouble in that particular seat of the animal's anatomy. The instrument brought forward by Mr. Salusbury Price was a matter of considerable interest because it was not often one heard of splints for broken necks (partial luxation). From the size of the apparatus and the method of application it appeared mechanically to raise the head of the horse and put it in a much more comfortable position while resolution was taking place. Apparently by that means it was possible to obtain a considerable amount of pressure on each side of the neck. It was really a case where most veterinary surgeons would send for Harrison and Barbers (the knackers). He thought veterinary surgeons should more often attempt treatment in many cases that they now gave up. Mr. Livesey's cases were of great interest because they would seem to suggest there was some contagious stomatitis amongst cats in Brighton. He had seen several similar cases, but it had never suggested itself to him that the disease might be contagious. The simple treatment he adopted was a solution of boracic in glycerine, and he insisted on feeding the cat with a spoon.

Mr. SHEATHER asked what degree of improvement was shown after using the electric cautery.

Prof. MACQUEEN said just about the same degree as might be seen after the ordinary operation of excision of the ventricle. The horse continued to make a noise, although not so bad as the noise made before operation, but he ceased to make it the moment he was pulled up after a gallop.

Prof. WOODRUFFF thought Prof. Macqueen would agree there were degrees in the usual result.

Prof. MACQUEEN said there were, but it was usually a very low degree! He had operated on another by the same method, but it was too soon to say much about the animal. If the operation succeeded even in the same measure as the ordinary operation of excision it would be within the range of any practitioner.

Replying to the President, Prof. Macqueen said the cautery was heated with an accumulator battery.

Mr. NEISH had had a number of cases of the sort described by Mr. Livesey and had always put it down to the cat having probably eaten something too hot. He fed the animal with a rubber tube, about the size of a large penholder, inserted into stomach, with a gag in cat's mouth, introducing in that way warm milk directly into the stomach. His cases had always been single cats, never as an epidemic. He had put down the emaciation to simple starvation. There was a good deal of ulceration round the edges of the tongue, but no abscesses

Mr. LIVESEY did not think any of the ulcerative

stomatitis he had seen could be quite due to lapping hot drinks or licking a hot fryingpan, or anything of that sort, because the tip of the tongue had generally escaped. In one case there was a well-marked ulcer in the pharynx.

Mr. ROWE said he had had three cases of cats with ulcers on the tongue, and he could only take the view that it was due to long teeth injuring the tongue. Sometimes, when the tusks grew too long, he snipped them off with bone forceps.

The SECRETARY reported that the Council had decided to vote a guinea towards the Royal Agricultural Benevolent Fund.

NOMINATIONS AND ELECTIONS.

Messrs. T. G. GRAVES, M.R.C.V.S., B.SC.; B. GORTON, M.R.C.V.S., and F. H. SANDERSON, M.R.C.V.S., were nominated for Fellowship.

Messrs. D. STEWART, M.R.C.V.S., 56 Worship Street, E.C. and H. D. JONES, M.R.C.V.S., 38a Denman Road, Peckham, S.E., were elected Fellows.

OUR KNOWLEDGE OF THE CAUSES OF ROARING.

By HAROLD A. WOODRUFF, M.R.C.V.S.,
Ryl. Vet. Coll., Camden Town, N.W.

Before commencing the subject proper, Prof. Woodruff desired to make plain two points: (1) That this was a stop-gap paper prepared to oblige their Secretary, and not the carefully-prepared paper due to the Central Veterinary Society; and (2) that he made no pretensions in it to add to our knowledge, to originate or invent any theories as to the cause of roaring, it was simply a critical survey of the causes commonly described and a plea for further investigation and research.

Unlike "Quittor" and some other conditions, in presenting this subject there is no need for a long discussion on an exact definition of "roaring," but taking roaring and whistling to be similar in kind, whilst differing in degree, we may say it is a condition of more or less respiratory difficulty associated with an abnormal sound on inspiration

Such a description eliminates many occasional and accidental conditions which produce stertorous, noisy, or even roaring respiration—whether inspiratory or expiratory. We may just mention some of these in passing:— *(1) Fracture and distortion of nasal bones: (2) polypi and tumours of nose, pharynx, larynx, or bronchi: (3) cancerous or melanotic growths in lymphatic glands at the side of larynx or pharynx: (4) distension of guttural pouches with pus: (5) chronic thickening of laryngeal mucous membrane after acute inflammation, diphtheritic or catarrhal: (6) ossification of, distortion of, or fracture of cartilages of the trachea: and (7) Percival found lung consolidation and pressure around the tubes in the lung, causing constriction.

I would here ask: Are there many cases of roaring where the sound is apparently of the common type, and yet where the cause is on the distal or lung side of the larynx?

But, practically, shall we not agree that the great majority of cases are of definite laryngeal origin?

What is the nature, and what is the cause of this laryngeal disease?

In a survey of the literature on the subject, Law says in nineteen cases out of twenty the condition is due to paralysis of the left recurrent nerve, with consequent wasting of the muscles supplied by it. These are the crico-arytænoideus posticus, crico-arytænoideus lateralis, thyro-arytænoideus, and the left half of the arytænoideus.

It is a well-observed fact that on post-mortem examination of roarers the laryngeal muscles of the left side are atrophied, sometimes even fatty, and the nerve is said to be wasted and thin as compared with that of the other side.

RELATIONS OF RECURRENT LARYNGEAL NERVES.

The right nerve leaving the vagus passes round the dorso-cervical artery inside the chest, then runs up the neck on the trachea and below carotid artery. The left, much longer, is gived off from the vagus on the base of the heart, passes round the arch of the aorta and the ligamentum arteriosum from without to within, then between the aorta and the left bronchus—so being related to the bronchial glands—then up the neck as on right side, except that it lies more on the œsophagus.

Now the most remarkable feature of roaring is that in the great majority of cases it is left-sided. Günther says this is so in 96 per cent. of cases; Cadiot, in 95 per cent.; Fleming, in 99 per cent.

What explanations of this fact are offered?

That there is disease on the left recurrent nerve near its origin or on its course to the larynx:—

(*a*) Because of its long intra-thoracic course, so that chest diseases, such as pleurisy and pneumonia, affect it. But in great majority of roarers one can obtain no history of pleurisy, and one is unable to find signs post-mortem. There are also the further facts that the right nerve is related to the pleura for a short distance, and that we know of no effects due to pleurisy on the phrenics and vagi which pass right through the thorax.

(*b*) Because of stretching and shocks to the nerve from the distended heart and aorta during violent exertion. This theory of the cause has more to support it than most of those advanced, and that for several reasons:— (i) It depends on the most obvious want of anatomical symmetry: (ii) Left-sided paralysis of the larynx in man is commonly produced by aneurism of the arch of the aorta: (iii) The early training and racing of thoroughbreds (two-year-olds) might be expected to produce stretching and dilatation of the heart and aorta, and so pressure on the nerve.

Several observers have described the nerve (left recurrent) as being constricted or flattened between the aorta and the trachea (Vaerst and Sussdorf). But there are some difficulties in the way of accepting this as the common or prevailing cause of roaring.

Firstly, that in the majority of cases there is no history of early racing or training. Secondly, that there is no aneurism and not even any obvious dilatation—at any rate, none is described by these writers who favour this view. Thirdly, that a nerve will accommodate itself to a gradually increasing tension and will stand moderate stretching (*e.g.*, stretching the sciatic nerve in the treatment of sciatica) without ill-effects. Fourthly, this view fails to explain the effects of climate upon roaring. These climatic effects are very puzzling and add considerably to the difficulty of understanding the causation of the disease. There is no doubt that roaring is much more prevalent in this country and in Western Europe than in warm countries like Egypt, South Africa, Australia, and India. On this point Fleming collected a large amount of evidence (*Laryngismus Paralyticus*, p. 21), and there would be no difficulty if this extra prevalence in cold countries were simply proportional to the greater incidence of respiratory and chest diseases. The difficulty arises in the no-less-well accredited fact stated in the words of M. H. Hayes: "I have known instances of imported horses which appeared to be confirmed roarers become after a time perfectly sound in their wind" (*Vet. Notes for Horse Owners*, 3rd edit., p. 257).

* Law's "Veterinary Medicine," vol. i, p. 134, *et. seq.*

This view is confirmed by other observers, for, says one (Anderson: *vide* Fleming, *Laryngismus Paralyticus*, p. 24): "Some of the thoroughbred Australian roarers are bought cheap in Australia and brought here for sale. I have known a few of these animals entirely recover in Oude and the North West Provinces, the climate being dry."

Here, then, we have a clincial observation which seems to dispose of high blood-pressure and dilatation of the aorta as a possible cause, for climate could affect this but little.

It would be interesting and of considerable importance to know whether the upholders of the *heart aorta-pressure view* had ever found histological or microscopic evidence of the degeneration of the nerve fibres at the seat of the alleged injury. One would expect to find evidence—assuming the local pressure to be the cause of the trouble—of local degeneration in the nerve, starting there and extending onwards to the larynx. Of such evidence I can find no record in English literature.

(c) A third explanation which has had much support, and for which much can be said, is that the paralysis is due to pressure on the nerve due to enlarged lymphatic glands—either of the bronchial or tracheal groups. It is evident that to produce a left-sided paralysis only, the enlarged (and culpable) glands must be intra-thoracic, for the two nerves, right and left, have the same relations to glands in their course up the neck. Thus the bronchial glands on the left side have been chiefly held responsible. Now it is well known clinically that strangles is one of the diseases most frequently followed by roaring. Many observers have testified to this fact, notably Nocard in France and General Fred. Smith in our own army. It is easily understood that lymphatic glands in the chest and down the neck might be enlarged if they were infected secondarily to submaxillary strangles, but what is difficult to understand is why we do not more commonly get secondary strangles abscesses in the chest. If enlargement of the bronchial glands is so common, why not strangles abscesses, then breakdown of the glands, and a fatal result? Strangles does not cause chronic enlargement and induration of glands; if it affects them at all it leads to acute suppuration and abscess.

Thus from a critical analysis of these so-called explanations one is bound to conclude that they are inadequate, at any rate until supported by further evidence.

Other Suggested Causes.

It is necessary, therefore, to examine into other possible causes. Law gives, in addition to the ones discussed, local causes acting about or in the larynx. Such, for example, are sore throat, parotitis, abscesses about the throat, but there is no satisfactory reason why such conditions should damage only the left nerve, or why the superior laryngeal nerve and the vagus itself on the left side should escape.

The same objection—the unilateral and left-sided occurrence—can also be urged against the suggestion that the condition is primarily a muscular one. In fact, the absolute precision with which the atrophy affects the muscles supplied by the left recurrent nerve makes it impossible to doubt that it is primarily a nervous lesion.

It may, of course, be said that we have to do here with a local or peripheral neuritis of the nerve terminals in the larynx. This would be quite feasible if the paralysis were bilateral, but it is not easy to understand otherwise.

There may indeed be a combination of causes—some local irritation from strangles or sore throat, and, in addition, some pulling or stretching of the nerve due to a dilated heart. It is well known that influenza, pneumonia, and other acute diseases exert a toxic influence on the heart muscle so as to weaken it. The ventricle wall is thus unable to withstand the blood pressure and so becomes thinner and the heart dilates, and such a condition needs a long period of rest to remove it. This points to the necessity of a long convalescence after any or all of these acute toxic fevers, but although a reasonable theory to account for some extra tension on the left recurrent, heart dilatation has still to be demonstrated in post-mortem examinations on roarers.

Neuro-Toxin Theory.

One more possible explanation must be briefly alluded to—namely, that the lesion is a peripheral neuritis of purely *toxic* origin. Sidney Martin ("Manual of Pathology," p. 471) speaking of peripheral neuritis, says: "Degeneration of the peripheral nerves due to disease is always the result of one or other form of poisoning. The commonest causes are chronic alcoholism, plumbism, and diphtheria. It may, however, occur as a result of the intoxication occurring in influenza, typhoid, pneumonia, septicæmia, etc.

These toxins often show a selective action—*e.g.*, lead picks out the *musculo-spiral* nerve and causes wrist drop in man, and the lesion may be symmetrical. Martin also says, in speaking of the effects of diphtheria toxin in man and experimental animals: "The nerves most frequently affected are not the large trunks, but the small intra-muscular branches and the small branches of the sensory nerves." Further: "The effect on the heart, which is so prominent a symptom in human diphtheria, is shown in experimental diphtheria (*i.e., in animals*) by degeneration of the muscle fibres, which in the early stage become granular and in the later stage fatty, losing their striation and nuclei." ("Manual of Pathology," p. 88).

Thus we might imagine roaring to be due to a local neuritis set up by the strangles toxin, but it would be unique for a disease to set up a unilateral neuritis, and that of the same nerve in every case, and yet, so far as I am aware, no other neuritis or paralysis has ever been attributed to strangles. Again, a peripheral neuritis of toxic origin is not usually progressive, but rather tends to improve and lessen when the primary disease causing it is recovered from. Roaring, on the other hand, is often quite slight after recovery from strangles or pneumonia, but gets progressively worse.

Notwithstanding all this, the possibility of a peripheral neuritis is of decided importance when we read of Thomassen's work. In Friedberger and Frohner's *Pathology*, under the discussion of causes, it is stated that all these views have been overturned by the recent microscopic researches of Thomassen, who found that "in 99 per cent. of all cases of nervous origin the changes in the recurrent nerve are to be found in its peripheral extremities, in the vicinity of the larynx." (Friedberger and Frohner's *Pathology*, vol. ii., p. 38.)

Heredity.

Lastly, mention must be made of hereditary predisposition or actual origin. This is a question full of difficulty, generally alleged to be an important factor so far as roaring is concerned, although disbelieved in by many competent observers. Nocard doubted it for one, and *if roaring be acquired* by one individual, it is contrary to the accepted views on heredity for such an acquired character to be transmitted to the offspring. On the other hand, we must remember "that diseases of the nervous system are the chief diseases of the body in which heredity plays a prominent part." (Sidney Martin's "Manual of Pathology," p. 493.)

With the mention of these views we must leave this very difficult question of heredity.

And now, having considered the prevalent views and theories put forward to explain this condition, shall we

not agree with the writer who says: *The causes of laryngeal stridor are not known with certainty?*" (Friedberger and Frohner's *Pathology*, vol. ii., p. 37.)

Investigation Needed.

It is a subject which requires detailed and patient investigation, and the work to be done may be summarized very briefly as being essentially on the following lines:—

(1) Laryngoscopic observation in the living animal during dyspnœa to determine whether the condition is: (*a*) unilateral or bilateral; (*b*) paresis or paralysis; and (*c*) what is the part played by ventricle.

(2) Careful dissection of the recurrent nerves to determine the existence of any frequent or constant abnormality in their relations to lymphatic glands or to the aorta.

(3) Histological examination of the nerve centres, cells and fibres of the vagi and the recurrents at frequent intervals along their length to determine the presence of degeneration, if any, and where it commences.

(4) Experimental testing on the dead subject of the influence of pressure on the aortic arch in normal and roaring horses. This should be undertaken shortly after the death of the animal to determine whether the heart or aorta can be made to dilate to any serious extent by means of such pressure as may occur in a horse put to severe exertion.

On these lines an investigation would increase our knowledge on this subject of vast importance to horse owners. It would possibly pave the way for more certain and efficient surgical treatment, and it might be expected to assist in some measure towards the discovery of preventive methods.

Discussion.

Mr. Almond was satisfied that the common cause of roaring is due to the anatomical arrangement of the recurrent nerve passing round the aorta, and he thought that solution was supported to some extent by the character of the horses concerned. As a rule, the kind of animal affected was one subjected to sudden effort, whether in the heavy class of horse or in the thoroughbred. It was more common in his experience in what might be described as mercurial horses, or a horse willing to exert himself, than in sluggish animals. The fact of the condition not occurring in warmer countries was a curious coincidence, and might be accounted for by the fact that in a cold temperature the blood pressure was more or less increased by sudden effort under those circumstances, and would in some measure bring about increased distention of the aorta and injury of the nerve before the action of the skin could be established. It had been suggested that strangles might precede a very large number of cases of roaring, but strangles was one of the commonest diseases of animals, and therefore it was probably more a coincidence than a sequence that the two things were related. Prof. Woodruff had suggested certain measures for introducing CO_2 into the respiratory tract in order to bring about dyspnoea, but he thought a much simpler method would be to prevent the ingress of air.

Prof. Macqueen thought the subject could be approached in three different ways; from the anatomical side, the consideration of causation based upon function; and the consideration of causation based upon disease. In order to arrive at a decision concerning the causation of roaring, it was necessary to approach the question from more than one attitude. He thought there was something more to be said in connection with the cause than merely attributing it to laryngeal defect. The very intimate connection between the larynx and the pharynx should not be forgotten, and in any investigation search should be made a little above the larynx. Even the structure of the larynx itself, the structure of the trachea, and the part played by the lungs in respiration and their effect upon innervation were not sufficiently considered. It was generally agreed that the disease arose from some defect in the nervous system, and particularly in the recurrent laryngeal nerve on the left side. He was not aware of anyone having found disease of the right recurrent laryngeal nerve, but disease or atrophy of the left had frequently been described. A specimen had been shown that evening of atrophy of the muscles of the larynx in a roarer, and there was no doubt that the atrophy was responsible for the defective movement of the arytenoid cartilage. The subject was perhaps better investigated a hundred years ago than it was to-day. If the superior laryngeal nerve of the larynx were divided, atrophy of the dilator muscles took place, yet the horse did not roar. That seemed to be a result that required further investigation. The superior laryngeal nerve and the inferior laryngeal nerve had a very intimate connection, and although it was the custom to describe the innervation of the cricothyroid as being derived from the superior laryngeal nerve, it was said to be innervated, so far as motion was concerned, by the first spinal nerve. It had been proved long ago that compression or division of the vagus produced an alteration in voice, and the first investigations regarding the functions of those nerves going to the larynx were instituted with a view to ascertain how the voice was produced. It was known, of course, that compression of the vagus nerve produced a marked alteration in the voice, and if compression was maintained long enough in the horse it produced roaring. That no doubt was on account of the effect of the compression upon the roots of the recurrent laryngeal nerve. Experiments were conducted between the years 1807 and 1834, and one case of compression arising from disease was described in "The Veterinarian" for 1838. Division of the vagus or its recurrent branch caused the horse to roar. If the right and left recurrent were divided, the horse might die instantaneously or he might live for several hours. It was stated that section of the recurrent nerve in the dog simply altered its voice, and if the function of the recurrent nerve was interfered with in the human being, there was still only an alteration in the voice. While mentioning those facts he was by no means inclined to believe everything that had been said. He thought there was a good opening for a re-investigation of the whole subject. With regard to disease, Prof. Woodruff was inclined to look rather lightly upon the effects of disease, and he spoke of impaction of the guttural pouch, apparently being under the impression that impaction of the guttural pouch was necessarily accompanied by roaring.

Prof. Woodruff said he mentioned it only as possibly being a cause.

Prof. Macqueen thought it might occur without producing roaring. The question was put to the test as far back as 1863 by Gerlach, who filled the guttural pouch with plaster, and found that the horse did not roar. He did not succeed in establishing a cause of roaring by that experiment. Deformity of the trachea was very often too lightly passed over as a cause. There was also the telescoping of its upper cartilages within the cricoid, which might be responsible for noise produced by some horses when first introduced into the show ring. When such horses settled down the peculiar sound disappeared. He thought it was due to the way in which the trachea was related to the larynx for the time being. With regard to disease, it was known that in advanced pulmonary glanders a horse would roar, and in the old days it was not difficult to find a roaring glandered horse. The roaring might have been due to ulceration of the nasal septum or of the laryngeal mucous membrane, but not always. The peculiar roaring noise which a horse made during rest was

looked upon as a useful symptom of glanders. With regard to the course of the nerves, mentioned by Prof. Woodruff, and their implication in pleurisy, there might be a very extensive pleurisy without either nerve being involved, and he thought the right recurrent laryngeal nerve was extremely well protected from invasion. With regard to strangles and enlarged glands, he agreed that recurrent laryngeal nerve paralysis was often connected with the effects of strangles or of catarrah, which might be indistinguishable in certain respects, and in consequence there was enlargement, probably preceded by congestion of the tracheal lymphatic glands. The very intimate connection between the left recurrent laryngeal nerve and the lymphatic glands in the mediastinal space of the horse was, to his mind, very suggestive of the possibility of disease of the glands affecting the nerve, and that was a view held by a great many members of the profession. In a report of a discussion in London, about 1842, there were some excellent accounts of diseases of those glands discovered post-mortem, and it would be found that almost every Continental observer, who had paid attention to the causation of roaring, referred to those glands as being enlarged and in some way affecting the left recurrent nerve. Then there was a question as to whether the course of the nerve round the arch of the aorta had anything to do with the causation of roaring. Although Prof. Woodruff looked upon aneurism as a very rare condition in the horse, it did sometimes occur. The late Prof. Fergusson, of Dublin, was the first man to suggest that dilatation of the aorta was a possible cause of roaring. Many believed that the position of the nerve on the arch of the aorta might expose it to stretching during rapid galloping, or severe efforts by the horse. That was supported to some extent by clinical evidence, but it was not a very satisfactory explanation, because the horse, even in his young days, indulged in gallops, and the nerve should gradually become accommodated to the increasing distension of the first portion of the aorta. With regard to climate, Prof. Woodruff was under the impression that roaring was not found in India.

Prof. WOODRUFF said it was less common in India than in Great Britain.

Prof. MACQUEEN said he understood roaring was fairly common in India. He was not aware of any authentic case of the disappearance of roaring in a horse after it had been removed to South Africa or to India. As to heredity, he was inclined to think it played a larger part in roaring than any other cause, and that certain acquired defects could be transmitted. If the disposition of the left recurrent laryngeal nerve in a roarer was bad he thought that the roarer would transmit the same sort of disposition to his progeny, and if there was anything in the position of the recurrent on the aorta, or in its relation to the tracheal lymphatic glands, he thought there was a higher probability of the same condition existing in the offspring. It was well known that many cases of roaring arose from very slight causes. A horse might show nothing more than a nasal catarrh not calling for treatment of any sort, and yet when the horse was tried it was found to be a roarer. He agreed with Prof. Woodruff that experiments should be carried out, but wished also to see some investigation into the physiology of the larynx and the structure of the parts involved. The condition to be investigated existed only at the time the horse was making a great effort, when the larynx was opening and shutting with great rapidity and the blood was travelling at the highest speed, and he did not see how Prof. Woodruff could use the laryngoscope under such conditions. Notwithstanding all that had been said and written, he still believed there was a closer connection between roaring and the circulation than anything else, and though he should do all he could to promote the investigation suggested, he was very doubtful as to the practical efficacy of the proposed experiment of increasing the CO_2 in the tidal air in order to produce a certain action in the muscles or cartilages of the larynx.

Mr. NEISH said that in ponies and cobs there were very few roarers, roaring being chiefly found in the big overgrown horses, cart or carriage. It was very rare to get a really good carriage horse 16-2 or above, that was not a roarer ; and also any big weight carrying hunter seven years old was very often not right in his wind. Now no theory had been advanced to-night that satisfactorily accounted why size and conformation was distinctly associated with roaring.

Mr. REEKIE agreed that a big horse of 16-2 or 17 hands required great care in examination as to wind, because even if he were sound at the time he might soon make considerable noise after a cold. A slight attack of strangles or sore throat is often followed by a noise when the animal was next put in harness. Young Irish hunters often contracted sore throats on crossing the channel, and became roarers. He had seen a number of cases where that condition arose from the thickening of the mucous membrane of the larynx, and a blister to the throat often effected a cure. Great liberties could be taken with horses that were in hard condition, as compared with soft young animals, without fear of their becoming whistlers or roarers.

Major EDWARDS stated that roaring did certainly exist in India. When horses were examined in the Remount Depot in Calcutta, 1,200 to 1,500 during the season, the number of roarers probably amounted to 1 or 2 per cent., which were rejected straight away, but there were sometimes 10 per cent. in one morning which were put back for further consideration. After a period of ten or fifteen days those horses might come through the tank and not the slightest noise could be detected. The noise at first made by such horses was certainly not roaring, but it could not be said they were sound in the wind. He thought the trouble was the outcome of chest diseases and, possibly, strangles. The horses rejected on account of roaring were probably horses that had done a certain amount of work either in Melbourne or other big city, and had come in contact with horses suffering from strangles when in stables. In South Africa, Australia, and India horses lived a good deal in the open air, and the stables in India were open, so that there was not much chance of horses becoming infected by contact with other animals.

Mr. REEKIE said that horses coming from America became more affected in their respiration than horses born in this country, but whether that was due to their coming from the dry air of America to the moist atmosphere here he did not know.

Prof. H. A. WOODRUFF, replying on the discussion, said an investigation was needed to show whether what Mr. Almond had said as to the nerve passing round the aorta being the real cause of the trouble was correct. It would be a good thing to take a number of horses' hearts and aortas from undoubted roarers and from horses which were not roarers, apply fluid pressure inside them, to see if it was possible to make the hearts whose fibres were weak from disease stretch, and pull on the nerves, while the healthy hearts exercised no extra pressure. With regard to mercurial horses being subject to roaring, it was well known that roaring did not not occur commonly in ponies, although a pony might be as mercurial as quicksilver. With regard to Prof. Almond's view, that in all cold countries the vessels in the skin were more constricted, and therefore there would be more pressure on the vessels in the heart, the horse when he roared was sweating, and the skin vessels were dilated to their fullest extent.

Prof. ALMOND said he quite understood a roarer after exertion was in a state of perspiration, but he was

referring more to the sudden effort when the skin was cold.

Prof. WOODRUFF could not agree that the great majority of horses had strangles, believing it better to say, as Prof. Macqueen had put it, that strangles *or some other ill-defined condition* was the starting point. No doubt a history of strangles was obtained in many cases, the roaring being just subsequent to the attack, and he did not think it possible to get away from the fact that strangles was a very common jumping off place for roaring, but not be affecting the bronchial glands. With regard to Prof. Almond's suggestions of blocking up the nostrils instead of giving CO_2 to produce laboured breathing, his first idea was to put a ligature round the trachea and gradually tighten it up, but if in a roarer the force of the incoming air bellied out the laryngeal pouch it played a most important part in the act of roaring, and therefore any lessening of the amount of air through the larynx would prevent the very thing it was desired to achieve. It was impossible of course to reproduce exactly, as Prof. Macqueen suggested, the condition of the horse at a period of extreme exertion. With regard to heredity, Wallace and other authorities were of opinion that acquired characteristics were not transmitted, and yet it was well known that roaring was frequently acquired by a mare or stallion, and became transmitted to the offspring. The explanation might be that it was the shape of the animal that was transmitted, and therefore the roaring accompanied it. He had never heard before that the cricothyroid muscle was in any sense innervated from the 1st cervical nerve, but he should pursue the point and get Prof. Macqueen's help in the matter. Prof. Macqueen also stated that compression of the vagus affected the voice. The vagus coming down the neck contained the recurrent laryngeal fibres, which only split off from the vagus when the nerve proceeded back again up the neck, so that any pressure on the vagus might easily catch the laryngeal fibres and produce the same effect as pressure on the recurrent laryngeal in its upward course. With regard to the guttural pouch, he had suggested that its *distention* might be the cause of roaring, not that it necessarily was so; but there was a difference between filling the pouch with plaster of paris and distending it. Prof. Macqueen did not agree that the right nerve might be implicated in pleurisy. A very excellent anatomy had been recently introduced by an American anatomist named Sissons; it contained a diagram showing that when the lungs were hardened with formalin, the aorta, the oesophagus, and various other structures in the chest, made impress on the lungs. On the right lung, two veins corresponding to the dorso-cervical artery, the dorsal vein, and the cervical vein, made two finger-like impressions on the inside of the right lung, and the nerve turned round from the vagus between the cervical vein and the dorso-cervical artery immediately in front of it. If the vein touched the lung it was certainly probable that the artery touched the lung also, and therefore the nerve—so that it might be affected by pleurisy. With regard to the left nerve and the glands, Prof. Macqueen did not really tackle the point. If it were strangles pure and simple those glands would in many instances suppurate. If it was simply a catarrh the glands might become enlarged without suppuration. If enlargement as the result of strangles was a common cause of roaring there would be more strangles abscesses in the chest than was generally found. Glanders on the other hand might easily account for the enlargement of the bronchial glands producing roaring, because it did not cause suppuration but chronic enlargement. While those enlarged glands might be an occasional cause, they were not the constant cause of roaring. What was needed was to find a *constant* lesion which would be there in the large number of cases. He was interested to hear that Fergusson was the first man to note the effects of the nerve going round the aorta, because Fergusson was quoted by Fleming as one of the first men to determine the effects of a tumour or enlarged bronchial glands; therefore Fergusson must have been acute observer, and must have noticed both the effect of enlarged glands and of the pressure of the aorta on the nerve going round it. Had Prof. Macqueen any reason to suspect that the physiology of the larynx in the horse was much different from the physiology of the larynx in man or other animals? With regard to inveestigation, he had suggested to Mr. MacCormack that the Society might be asked to help such an investigation, and appoint trustees to supervise it. If in the opinion of the Fellows or of the Council it was a desirable subject for investigation, he should be prepared to undertake some work, with the assistance of his colleagues, going for co-operation and advice, as he so often had to do, to Prof. Macqueen.

A vote of thanks was unanimously accorded to Prof. Woodruff for his paper, and votes of thanks were also accorded to the exhibitors of morbid specimens and instruments, and the meeting terminated.

HUGH A. MACCORMACK, Hon. Sec.

Action against a V.S.—Mange or Eczema.?

In the King's Bench Division by Mr. Justice Pickford and a common jury on Feb. 13th, 14th, and 15th, Mrs. Louise Hecht Steinhardt, wife of Michael Steinhardt, brought an action against William Urquhart, veterinary surgeon, 124 Maida Vale, London. W., to recover damages for alleged personal injuries, for injuries to her pet dogs and for loss occasioned by the defendant's alleged negligence. The damages were claimed in respect to an illness the plaintiff alleged she contracted from her dog "Patch"—a Yorkshire terrier, which was alleged to be suffering from mange after it had been treated by the defendant and returned; also in regard to injuries to two other dogs, a poodle and a Yorkshire terrier, which, it was suggested, caught the disease from the plaintiff, and for the loss of "Patch" who died after it had been removed from the defendant's establishment.

Mr. McCall, K.C., and Mr. Emery appeared for the plaintiff, and the defendant was represented by Mr. Langdon, K.C., and Mr. C. Attenborough.

Mr. McCall, in opening for the plaintiff, said that the dog "Patch" suffered from skin irritation and was sent by the plaintiff to the defendant for treatment. She was told by the defendant that it was suffering from eczema, and after some time it was sent back, but owing to its condition still being unsatisfactory, the animal returned to the defendant's place. During April, 1909, the plaintiff went to Paris and on her return she was told that "Patch" had recovered, but the dog had had sickness through licking some of the preparation that had been put on by the defendant, who suggested the animal remaining for a short time.

Eventually, counsel asserted, the dog got into a shocking state. In the course of time "Patch" was removed to the plaintiff's home, the defendant stating that it was not suffering from anything that could be communicated. On the dog's return, the plaintiff consulted a veterinary surgeon named Sewell, who stated that the animal could only live a few days and that it had mange. Soon after, the dog died. Correspondence passed between the plaintiff's husband and the defendant, the latter stating that the dog had been well looked after, having had milk, meat, and Benger's food.

Counsel proceeded to state that after the return of the dog "Patch," the plaintiff was found to be in a very nervous condition and she became unwell. Two other dogs which had been left at the defendant's establishment while the plaintiff was abroad, were also found to be in a bad condition, and had to be sent away. The

defendant, in correspondence, denied having made a mistaken diagnosis in the case of the dog "Patch." Mr. McCall added that the items in the claim included medical attendance to the plaintiff, the value of certain clothing destroyed, the cost of disinfecting the house, and the value of the dog "Patch."

Mrs. Steinhardt gave evidence to bear out Mr. McCall's statement, and mentioned that the charge made by the defendant for treating the dog "Patch" was 10/6 per week. She asserted that when the dog was finally brought home, the defendant told her the animal was "all right now." She was told by a veterinary expert that it was suffering from "stomachitis." The witness added that the day after she brought "Patch" home she began to suffer from skin irritation.

When the hearing was resumed on Tuesday, Feb. 14, Mrs. Steinhardt re-entered the witness box and went on to describe measures she took to disinfect her house, and stated that she burned clothing to the value of £8. The irritation continued for a month, and about the end of July she went away to Karlsbad. She treated herself according to a chemist's prescription—the treatment involving the mixing of a chemical in a bath. She also used a lotion and some special soap for her hair.

In cross-examination the witness said she had sometimes had a rash after eating strawberries, but it was not in this case due to that, as it was not the strawberry season.

After the evidence of the husband of the plaintiff—Michael Steinhardt—taken on commission, had been read—

Christopher Brown, an unqualified assistant at Messrs. Sewell and Cousens, gave evidence to seeing the dog "Patch." It was, he said, in a very bad condition and the skin suggested an appearance of mange, which was a very contagious disease. The dog was practically hairless, and the mouth had "Stuttgart dog disease."

Cross-examined: It was not the view of veterinary science that if a dog got Stuttgart dog disease it was doomed. The disease was a form of gastro-enteritis.

Mr. F. W. Cousens, of Elizabeth Street, canine surgeon to T.M. the King and Queen, next gave evidence. Asked as to how long the dog would have been "apparently ill" before it got into the state described by the previous witness, he replied about a week. Mr. Cousens also stated that the plaintiff had mange, and said that this was no uncommon thing for his clients to suffer from. The disease was highly contagious and could be communicated from a dog to a human being or *vice versa*. The name of the parasite in mange was "sarcoptes." Mr. Cousens added that he advised the plaintiff to burn the clothing that had touched her skin, and to bake other articles that she had worn.

Mr. Cousens further stated that there were always preliminary symptoms to the "Stuttgart dog disease," though they varied considerably. The ulcers on the mouth, once they appeared, generally developed with rapidity both in size and depth. The disease of mange was somewhat difficult of recognition in its very earliest stages. There was a specific parasite for the human subject, and a specific parasite for the dog. There was a parasite that produced itch, but it was not the parasite that produced mange in a dog.

By Mr. Langdon, K.C. (for the defendant): People have come to you asking for treatment for their dogs, and you have noticed that they themselves had mange?—Yes.

They had not noticed it at all themselves?—They were not able to put a name to it. The irritation they probably noticed only too well. (Laughter.)

They have had treatment, and it has gone away quickly?—It depends on the treatment. I am not a human doctor.

You did not give any prescription?—No.

Did you advise her to get sulphuret of potash?—I told her to get an ounce of sulphuret of potash in a gallon of water, and having dissolved it in boiling water, to bathe the affected parts twice weekly at least.

You did not send her to a doctor?—I advised her to consult a medical man.

You say mange is communicable from dog to dog?—Yes.

And if a dog went to any place where these minute parasites were he would catch it?—Yes, if the dog gets the parasites on his skin they stop there.

I suppose mange is a very common disease among dogs?—Yes.

I suppose eczema is not uncommon?—No.

It is very common?—Yes.

As common as mange?—It is difficult to tell.

In veterinary science mange is known to be carried by this little parasite?—Yes.

The thing that determines the existence of mange is this minute creature?—You cannot have mange without the parasite being present.

If you do not find the parasite, you may fairly conclude it is eczema?—Not at all. You cannot always find the parasite. You may find some parasites on the surface of the skin, but the majority are in the epithelium.

So that to determine whether it is eczema or mange it is important to try and get the parasite?—Sometimes "yes," sometimes "no."

It depends upon the disease?—It depends upon the condition of the skin.

You look for the parasite under the microscope?—You take a scraping of the skin. It is a microscopic parasite.

If you do not find a parasite, is there any other distinguishing feature determining it to be mange or eczema. If so what is it?—I should say the history of the case.

What symptoms are there in each case?—Some of the parasites are smaller than others. There is no difference in the appearance of the skin in mange or eczema. There are many stages of the disease. I should expect to find the parasite in the initial stage. One parasite would be sufficient to start the disease.

If a dog scratched himself all over that suggests the presence of several parasites?—Yes.

And in the early stages you would expect to find the parasite?—Not always. Sometimes it is very difficult to do so.

It would depend on what you saw?—Yes; sometimes one would be certain of finding the parasites, sometimes not.

So that in a difficult case the best veterinary surgeon might be in doubt?—It is impossible for me to give a definite answer because that would depend on the case.

I suppose you have had difficult cases in your time?—Yes.

If the disease is complicated with "Stuttgart distemper" the discovery of the condition of the body would be difficult for the veterinary surgeon?—Yes certainly.

Because he would have to follow two sets of symptoms?—Yes.

After answering further questions as to the means of destroying the parasite in clothing by hot ironing, boiling water, etc., Mr. Emery asked Mr. Cousens whether mange and eczema were difficult to distinguish when they were slight or when they were of long standing?

The witness replied that some cases were particularly easy to diagnose, others were not.

A long standing case may be difficult of diagnosis?—It may be, but it ought not to be.

By Mr. Langdon: It is more difficult to diagnose a chronic case?—It is possible that in some cases it may be difficult, but in the majority of cases "no."

I suppose you have not studied this, but would you say if this little creature survives petrol?—One could

not use petrol, if it were the best remedy, because dogs are too fond of fire. I would not use it in connection with a dog.

Mr. Langdon: Did you see the dog "Patch" alive?—No.

Dr. R. L. Seagrove, of Willesden (who was consulted by the plaintiff) next gave evidence.

Mr. McCall: Have you ever seen in your practice a case of a human being suffering from mange communicated by a dog?—The term mange does not apply to human beings.

Do you know that the disease is readily contracted by a human being from a dog?—From reading.

Suppose a human being contracts a disease which in a dog is called mange, what in your opinion is the proper word for it in the case of a human being?—Scabies.

In your opinion the disease the lady was suffering from would properly be called scabies?—Yes.

By Mr. Langdon: Then is human itch caused by the parasite of mange in a dog?—I do not know anything about a dog.

Do you know what is called human itch, is it "sarcoptic itch?"—I have heard so.

You did not know it before?—No.

In human itch there is burrowing under the skin?—Yes.

With this sarcoptic itch there is no such burrowing?—I do not know.

You took it that this case of the plaintiff was one of scabies or ordinary human itch?—Yes.

You concluded it was human itch?—Yes.

Mr. Langdon (to the Judge): That is my case, my Lord.

Mr. Langdon (to the witness): Human itch can be caught readily?—Yes.

If the lady used the sulphuret of potash, concerning which Mr. Cousens told us, it would be very strong?—Yes.

It would feel like a mustard bath indeed?—Yes.

Taking the ordinary human being, this itch is, I believe, quite common?—Yes.

And it is easily cured?—Yes.

Say, three applications of the proper remedy might cure it?—Yes.

Mr. Sewell, veterinary surgeon to the King, spoke to seeing the dead body of the dog "Patch," and concluded that it had mange. He added that the plaintiff had spots on her body like those on the dog, and expressed the view that people could readily catch mange from dogs.

By Mr. Emery: It has been suggested that the dog suffered from eczema.—I consider from the general appearance it had mange. I have no doubt about it.

Cross-examined, the witness said there ought to be no difficulty in distinguishing mange and eczema.

Mr. Langdon: Do you say that in no case could a veterinary surgeon be mistaken in his diagnosis.—I say veterinary surgeons have made mistakes, they may have done.

The Judge: The question is—if a veterinary surgeon used proper skill would he be mistaken?—Not if he looked at it closely. The witness added that at the commencement of a case of mange the mistake might be made.

By Mr. Langdon: Do you not know that at the Veterinary College it is recognised that the difficulty of distinguishing eczema and mange in all their stages is very great?—I was not aware of it.

Do you know Prof. Woodruff at the Veterinary College?—No.

Have you ever heard that that is part of the teaching of veterinary surgery?—I have not heard it before.

Is not mange more characteristic at the beginning than at any other time?—No, there may be three or four spots.

Say the first week—Is it not more characteristic at the beginning of the disease?—No it is not, because the hair has not fallen off by that time.

The parasite of mange and the parasite of human itch are different?—Yes.

Mr. Langdon, addressing His Lordship, said that by the evidence of the medical witness, Dr. Seagrove, he held that the plaintiff was suffering from human itch, and not the sarcoptic itch that produced mange. The learned counsel proceeded to review the evidence and said that he intended to call the defendant, Mr. Urquhart, who was a gold medalist of the Veterinary College, and had been in practice since 1904. Counsel went on to remark to the jury that a veterinary surgeon was not infallible, just as lawyers, barristers, and even King's Counsel might make mistakes. If there was a *bona fide* error of judgment, they were not to find him guilty of negligence. Concluding, Mr. Langdon said the defendant would say that he treated the dog for eczema and there was no evidence of mange.

At this point the Court adjourned till Wednesday.

When the hearing of the case was resumed on Wednessay, Feb. 15, Mr. Langdon called Dr. A. Whitfield, F.R.C.P., a Professor of London University, Professor of skin diseases at King's College Hospital, and Lecturer on skin diseases to the Royal Army Medical College.

Dr. Whitfield said that the rashes in dog mange and human scabies were distinct, and not interchangeable. The disease mange could be cured fairly easily. Mange attacked the face in human beings, but the ordinary human itch did not do this. So far as Mrs. Steinhardt was concerned, from what he had heard, he thought the diagnosis of the witness, Dr. Seagrove (viz., that the lady had scabies) was correct.

By Mr. Emery: You hear that this lady carried the dog under her cloak. Would not that affect the chest?—It would be likely if the dog had mange.

As she had done that would not the chest be the part the most likely to be first affected?—Yes.

The witness further stated that while the general appearance of the two things, dog mange and human scabies, were similar there were differences. The face was almost invariably attacked in mange, but not in scabies.

The plaintiff, Mr. William Urquhart, giving evidence, said he was a member of the Royal College of Veterinary Surgeons and a gold medalist. He remembered receiving the dog, "Patch," belonging to the plaintiff about Christmas-time, at his establishment, 124, Maida Vale, W. The dog had eczema. He took scrapings of the skin, submitted them to microscopical examination, and found no trace of the mange parasite. The plaintiff after a time took the dog away, and it was returned to him subsequently, still suffering from eczema. He applied dressings and varied the treatment, using oil of cade, and it had, as articles of diet, meat and Benger's food. He remembered Mrs. Steinhardt bringing her two other dogs—a Yorkshire terrier and a poodle—and they were put with the dog "Patch." No dogs developed mange in his establishment. On May 14th the plaintiff and her husband called, and he told them the dog, "Patch," had eczema and was not suffering from anything contagious. He denied that on that occasion he said the dog was "all right." The witness further asserted that he took every care of the dog. None of the dogs went out, so that they could possibly catch mange. He did not take in infectious disease at his establishment. If he had had a case of mange he would have had the place full of mange. Mr. Urquhart also stated that there had been no complaints from the owners of the other dogs whatever.

Replying to Mr. Emery, Mr. Urquhart said he was acquainted with Stuttgart dog disease. The preliminary symptoms were very irregular and might be thought to be some other disease. He did not treat the dog for

mange, but the dressings he applied would have cured mange if mange had been there.

As a matter of fact is it not difficult to find the parasite in the case of mange?—Yes.

If you find the parasite you are sure it is mange?—Certain.

If you do not find the parasite you are not sure it is not mange?—Not always.

Do you regard it as the strongest proof there was not mange, that the other dogs did not catch it?—The strongest proof. Mange is very contagious.

Questioned further as to the action of the dog in licking the preparation put on the dressings and making itself sick, Mr. Urquhart said he thought a muzzle would be ineffectual. A dog could get its tongue through any muzzle. If it wanted to lick it would lick.

You are quite convinced the dog Patch did not have mange?—Absolutely.

Mr. Sewell, who saw the dog after it was dead, says it had mange?—He made but a cursory examination.

Do you suggest that Mr. Sewell, with his experience, was mistaken?—I say he was absolutely mistaken.

Have you often had cases of mange among your clients?—I have heard of cases.

In your letter to the plaintiff you suggest the dog had a parasitic disease of the blood?—That is a general term. We reckon eczema to be a disease of the blood, and it was referring to that.

You had not diagnosed any particular parasitic disease of the blood?—No.

The plaintiff, Mrs. Steinhardt, was at this point recalled for cross-examination, and she now stated that the dog "Patch" and others had been in the charge of a veterinary surgeon named Broad before Mr. Urquhart received them.

Mr. Broad, veterinary surgeon, Craven Terrace, Hyde Park, then gave evidence. He said that he had treated Mrs. Steinhardt's dogs on and off for three years. The two Yorkshire terriers had had eczema intermittently ever since the plaintiff had had them. He had the dogs at his establishment from 29th July, 1909, to 23rd December, 1910, and they had been taken out into public places by the plaintiff or her husband. He had strict orders that the dogs should not be washed, as one poodle, when it was washed, had wiped his eye in some straw and made it sore.

Professor Woodruff, Professor of Veterinary Medicine, was next called. He said that in his opinion eczema and mange were difficult to distinguish, except in the early stages of mange.

Suppose you have a dog that has been intermittently suffering from eczema, and is so suffering when it comes to the veterinary surgeon, or assuming that it is suffering from mange, would it be difficult to distinguish?—I should say extraordinarily difficult. The only way would be the definite finding of the parasite.

In your opinion was the defendant's treatment reasonable and proper?—Yes. In fact I think the defendant was more scrupulous than the ordinary veterinary surgeon would be in using the microscope.

Professor Woodruff further stated that in his opinion the dog had eczema, and Mr. Urquhart's diagnosis was right.

William Hunting, consulting veterinary surgeon to the L.C.C., was next called. He said he thought the treatment given by the defendant was wise and proper, and further testified that in 1878 he caught a skin affection from a dog. After he had had it two or three days he cured it in one night by applying oil of staphisagria.

After the learned counsel on both sides had addressed the jury, the Judge summed up, and the jury returned a verdict for the defendant. Judgment was entered accordingly.

AFGHAN WAR, 1879—1880. The Kuram Field Force.

Report on the working of the Veterinary Department, by Veterinary Surgeon (1st Class) G. A. Oliphant, Officiating Inspecting Veterinary Surgeon. *(Concluded from p. 532).*

At the end of this valuable report are tables of which the following is given as the summary :—

Abstract of the number of Animals treated in the Transport Hospitals, Kuram Field Force, 1879-80.

Hospital.	Admitted.				Discharged.				Died.				Remained.			
	Mules & Ponies	Donkeys.	Camels.	Bullocks.	Mules & Ponies	Donkeys.	Camels.	Bullocks.	Mules & Ponies	Donkeys	Camels.	Bullocks.	Mules & Ponies	Donkeys.	Camels.	Bullocks.
Thal	1562	858	1480	1775	978	849	1180	1510	42	9	289	74	542	...	13	189
Kuram	1466	526	1211	932	1405	504	602	801	26	22	609	131	35	...	...	...
Shalozan	448	...	575	14	256	...	184	14	...	...	391	...	189	...	...	1
Camps at Zeram, Kuram	9	...	788	43	9	...	252	42	...	...	536	1	...	...	...	...
Totals	3485	1384	4054	2764	2651	1353	2218	2366	68	31	1825	206	766	...	13	190
G. Totals		11,687				8,588				2,130				969		

Percentage of Deaths.

Mules and Ponies.	Donkeys.	Camels.	Bullocks.
1·95	2·24	45·00	7·50

Horse Breeding Scheme—Appointments.

The Board of Agriculture and Fisheries, with the sanction of the Treasury, have completed arrangements whereby the existing organisation of the Animals Division of the Board, with their inspectorate, will be utilised for the purposes of the administration of the new scheme for the encouragement of horse breeding. Certain additions to the existing indoor and outdoor staffs of the division have been rendered necessary, however, and the number of administrative divisions and districts into which Great Britain was divided for the inspecting work in connection with the Diseases of Animals Acts has been increased. The following consequential appointments and promotions have been approved by the President of the Board :—

Mr. Frederick William Carter, general inspector to be a superintending inspector.

Mr. William Henry Fitzroy Landon and Mr. Arthur Hamilton Pryce, to be general inspectors.

Messrs. Benjamin Hughes Satterthwaite, James Edwards, Eugene Monier Wason, Giles Swainston Strangways, and George Thomas Dixon, formerly non-established inspectors, to be placed on the establishment as inspectors.

Messrs John Robertson, John Frederick Hulton Wrightson, James George Black, and Harold Vaughan, formerly assistant inspectors, to be district inspectors (non-established).

A number of vacancies amongst the assistant inspectorships remain to be filled up.

Mr. James Ralph Jackson, M.R.C.V.S., veterinary inspector, to be a superintending veterinary inspector.

Mr. W. G. Wragg, M.R.C.V.S., veterinary inspector, to be in charge of the Board's laboratory at Wembley, with the additional allowance of £100 per annum allotted to the holder of that post,

Mr. John Lamb Frood, M.R.C.V.S., formerly an assistant veterinary inspector, to be an established veterinary inspector.

Some vacancies remain to be filled amongst the assistant veterinary inspectorships.

A new horse-breeding branch has also been created to deal with the indoor work of the Board in connection with the scheme, and the following appointments have been made :—

Head of the branch, Mr. Eustace Beverley Shine (formerly private secretary to Lord Carrington).

Assistant to head of branch, Mr. Edwin Baxter Wilson. (Mr. Wilson has also been appointed one of the joint secretaries to the Advisory Council on horse breeding).

Four second division clerks are also employed in a temporary capacity in the branch, but the clerical staff is not yet complete.—*Standard.*

PARLIAMENTARY.

In the House of Commons on Friday, Feb. 17.

Horse-Breeding.

On the Supplementary Estimate for the salaries and expenses of the Board of Agriculture and Fisheries and the Royal Botanic Gardens at Kew,

Sir E. Strachey (Somerset, S., Min.) said the estimate was presented to enable him to place before the Committee how it was proposed to deal with the money received from the Development Commissioners. The scheme of light horse-breeding, which was of the greatest importance, only received Treasury sanction on the 2nd of last month. Forty thousand pounds had now been allotted for this purpose to the Board of Agriculture, and the President of the Board had constituted an Advisory Council, and there would also be a committee in every county to advise and assist the Board in the use of the money. He would like to take this opportunity of saying what excellent work the Royal Commission on Horse-Breeding did considering the small amount of money at their disposal ; and he was glad to think that the Board of Agriculture had been so fortunate as to obtain the services of five members of the Royal Commission on the Advisory Council, which would secure continuity of policy in regard to light horse-breeding in the country. They were fortunate also in having as chairman Lord Middleton, who had done so much for horse-breeding. (Cheers.) King's premiums would be offered to the best class of thoroughbred stallions at the show of stallions at Islington next March. Fifty premiums at 50 guineas each have been offered in 19 districts, and 115 stallions had been entered to compete for these premiums. Each stallion, in addition to the premium up to 90 mares served, would receive a fee of one guinea. There would also be a groom's fee of 2s. 6d., and the owner of the mare would have the right of asking for a fee of two guineas. For every foal up to 90 the owner of the stallion would have the right of charging 12s. 6d. Then if the stallion travelled there would be an allowance of half a guinea for each mare served up to 90. In addition the owner could charge a serve fee of £2.

The King's Challenge Cup.

Then, again, it would be of interest to the country to know that His Majesty had been pleased to offer a Challenge Cup to be competed for by the winners of the King's premiums at the Spring Show. (Cheers) The Cup was to be held for one year, and he was sure the House would appreciate the advantage it was that his Majesty had shown such great interest in the matter. (Cheers.) It would have the result of increasing competition and getting better stallions sent to the spring show. That was one of many proofs of his Majesty's interest in this national industry. (Cheers). The Board of Agriculture intended to give the winner of the King's Challenge Cup each year a gold medal in token of his having won that cup.

There was another premium, to be called the Board Premium. That would be given to not more than 50 stallions, and these stallions would not necessarily be thoroughbred. As regards these premiums, for each mare served up to 90 the owner of the stallion would receive one guinea, and for each foal dropped up to 90 there would be a sum of 5s. per foal ; and when the stallion travelled there would also be, up to 90, a sum of 6s. extra. The owner would be allowed to charge £1 for each mare served in addition. These stallions would be selected locally by the Board with the assistance of the county committees, and the county committees would be asked to provide precise stations in their localities for the stallions. The Board also wished to do something to encourage the keeping of brood mares in this country, and with that object they would give free nominations to about 800 King's Premium horses at a value of £2 each, and to about 650 Board Premium stallions at about £1 each. There would also be a purchase annually by the Board of some 200 half-bred active working mares to be placed with suitable persons by the county committee. These mares would be served annually at the same fee, not exceeding £2, at cost of the custodian. Then again the county committees would have the option up to four years old to purchase any foal dropped by a mare lent out to any farmer in the district, due notice having to be given within 14 days to the county committee by the custodians of the mares. As to the question of the purchase of stallions, there was a recommendation by the Royal Commission and the Committee of the Hunters' Improvement Society that there should be power for the Board—and they were taking that power—to buy any valuable stallion

which would otherwise be exported and lost to this country. But it was not proposed up to March 31 to use any money for that purpose. He had only dealt with the general proposals, and many details would have to be thought out. He was sure the House would consider it undesirable that the Board should be tied down to any exact scheme or line of action. (Hear, hear.) As he had said, the scheme only received Treasury sanction within less than six weeks, and the Board desired to receive not only advice from the Advisory Council and the county committees, but also advice of a critical nature from members of the House and from any outside body. They would be only too anxious to receive suggestions, and he assured the Committee that they desired to do everything they could to carry out the scheme, to make it effective, and to bring it into such working order that the owners of stallions and breeders of light horse stock in the country would be assisted in every possible way. (Cheers.)

Viscount HELMSLEY (Yorks, N.R., Thirsk, Opp.) thought the Committee would welcome the statement of the hon. baronet, and the fact that at last some of the needs of the horse-breeding industry were being recognized and that something was being done for its encouragement. As a member of the advisory council, he desired to acknowledge the spirit in which the Board of Agriculture had set it up and to express his belief that, by this means, the Board would get thoroughly into touch not only with breeders but with all those interested in the horse-breeding industry. There were certain comments he would like to make on the Government scheme, which, on the whole, he believed would do much to encourage horse-breeding. The King's premium system, though it had answered fairly well, had not been quite the success that, perhaps, it might have been, and he was rather afraid that, with the increase of premiums from 28 to 50, the standard of the winners would inevitably decline. No doubt, however, that would be corrected as time went on. A better allocation of the money than this extension of premiums would, he thought, be to devote it to free nominations to mares. The Government scheme did, in fact, make a beginning with such an allocation, and, though he knew there was a difference of opinion on the subject, personally he thought that was a better way of encouraging breeding than giving premiums. He hoped that, as time went on, the Board would increase the number of free nominations, and, in order to do that, would diminish the amount of premiums. He was grateful to the Government for having adopted some of the recommendations of the Hunter Improvement Society, but there were other recommendations which he thought they might also have accepted. Among these were the granting of loans to breeders for the purchase of stallions and the adoption of means, such as existed in Ireland, for facilitating the acquisition of stallions by private owners. He did not know that anything was being done by the scheme to increase the number of stallions available—the premiums by themselves would not do that. What they wanted was to get another type of stallion as well as the thoroughbred stallion into more general use in the country. They ought to encourage a regular breed of light horses, which, of course, would need occasional reference back to the thoroughbred stallion. This could only be done if the Government could ensure the keeping of half-bred horses entire until they were old enough to become stallions. The cost would not be great, not more than £2,000 a year. The Army authorities could do a great deal to encourage horse-breeding generally. They could do so first of all by buying at a younger age, and they might also do a great deal in the way of getting into closer touch with breeders, and buying more directly from them. No doubt this would not answer so well at first, but if the War Office persisted in that policy, sending a buyer down to gatherings of horses periodically to select those that were wanted, they would find suitable horses in larger numbers, and the buyer would be able to buy every year a larger proportion. The Government buyer, too, when he went to a horse centre should be in a position to buy a considerable proportion of horses, and not merely one or two. The Army used a great number of mares. Would it not be possible for the War Office to buy a few mares of rather higher class and leave them for a year with the breeder to get a foal out of them? That would ensure the keeping up of the horse population to that extent, encourage breeding, and save the country a considerable sum of money, because it would provide a certain number of mares for the scheme of the Board for allocating mares to breeders. There were some points about the scheme which he would like to see different, but he welcomed the encouragement to the horse-breeding industry, and believed considerable good might come from it.

Mr. HALDANE (Haddingtonshire) thanked the noble lord for his criticism and suggestions, for the Government were quite open to learn. It was a new departure this scheme of the Board of Agriculture, and there were points upon which no doubt criticism and experience would throw further light upon a very complicated subject. He said the same thing about the Army part. He did not know any question connected with the Army which was in a more chaotic condition than the horse question. (Hear.) For some reason or another nobody seemed ever to have thought it worthy of serious thought, and it was only very slowly that anything had been done. The steps that had been taken by the military authorities were only part of a general plan to put the horse question on a proper footing, but it was necessary to proceed very tentatively, because they had to learn as they went along. What was the interest of the Army in this horse-breeding scheme? It was to keep a large reserve of horses in the country. The tendency at present undoubtedly was for the number of horses to go down. Motor traction was making a great deal of difference.

SADDLE HORSES.

The question of saddle horses was also an important one. Ireland and some of the English counties appear to have the same capacity and natural gift of producing horses of very fine quality, and of the type that Lancashire has produced. Whether it was the climate or the soil, or a combination of both, he could not say, but the type of horses produced seemed to be unrivalled. In his view they should take all the advantage that was possible of our horse-breeding facilities, and this feature, indeed, was the foundation of the scheme. So far, therefore, from wishing to discourage the foreign buyer he was much more inclined to see him encouraged, because the greater the market the better would be the breeding. The War Office bought under 3000 horses a year. This was not enough by itself to keep up the market, and the authorities wanted therefore to encourage the breeder as far as they could.

Viscount CASTLEREAGH (Maidstone, Opp.): How many come from abroad?

UTILITY OF THE MIDDLEMAN.

Mr. HALDANE said that as far as the authorities knew they were Irish-bred horses, and they believed them to be so. Anyhow the difficulty which the authorities had to encounter was that the demand was so small that they could not carry out in a comprehensive fashion what was demanded of them. If they were buying horses in enormous quantities it would be easy to organise the breeders so as to bring their horses to a particular point, but when they only bought a few at a time such an arrangement was not easy to overtake. The War Office buyers found that, after all, the middleman was not such a bad institution as it was commonly sup-

posed to be. The middleman understood the art of dealing with a horse better than the Army officer. The average Army officer did not deal so well with the breeder as the experienced middleman, and the result was that it was not altogether so bad a plan as it seemed to deal with the middleman. But all the same he was far from discouraging any scheme or effort which aimed at direct dealing with the breeder. The authorities made an effort where they could to follow up suggestions but at present he guarded himself against its being supposed that this was ever likely to be a process which could be carried out on an extensive scale without some disadvantage being revealed in the system. One of the advantages of the new plan at any rate was that it would, to a large extent, offer that opportunity.

The Defect of the Cavalry.

When foals were produced it was contemplated by the authorities to purchase the animals for Army purposes. They would be purchased at a lower age than at the present time, because it was felt to be convenient that they should provide foals, say, at three years old. The difficulty, however, was when they had obtained the foals to find out the best means of training and using them. Salisbury Plain was not a particulhrly good area for foals owing to the Artillery practice and other hindrances. It seemed to him that it would be preferable to send them out to farms, and thus the authorities contemplated leaving the foals which were purchased young with the farmers. He did not pledge himself to the details under this scheme, but they believed in buying foals at a young age and to board them out in such a way that the authorities could get them when they were wanted. Indeed, the horse problem of the Army was presenting increasing difficulties as more knowledge was acquired. He was convinced, however, that they did not train Army horses, and especially the Cavalry horses, up to the standard attained on the Continent. That question was under the consideration of some of the best experts. He was also convinced that there was a great waste in horseflesh by putting too young horses to work at the Manœuvres. That question was also receiving close consideration at present, and as it opened up a thorny and complicated problem it would be preferable to survey the question as a whole before they committed themselves to the details. But some system was assuredly wanted in respect of the Cavalry horses, for here it was that most work had to be done. While it was likely that there would remain in this country an ample reserve for all our Army horses, it was plain that it was not easy to get saddle horses. They believed that they could get enough Artillery horses, but as to the Cavalry horses they were not so clear. The authorities were watching this breeding scheme with close attention, because it might help them to a solution of the problem how to keep up a proper reserve of saddle horses for the Army. He would also take into consideration the suggestions made as to cast mares and foals with the view of encouraging breeders. But the whole question was bristling with subsidiary problems, and he hoped that some progress towards solving them would be made when the estimates came to be considered. The War Office and the Board of Agriculture were co-operating in the production of this plan, and they hoped that in the future they would be able to work out a scheme.

Mr. Spear (Devon, Tavistock, Opp.) expressed his appreciation of the attempt which was being made by the Board of Agriculture to encourage horse-breeding. He suggested that the Board ought to consider the best means of placing cast mares in the hands of breeders. The registration of stallions was a step in the right direction, but it should be made illegal for any owner of a sire used for a fee to use the animal without a certificate of soundness from a veterinary surgeon. When the War Office had sought to deal with farmers the latter had sometimes brought up a great many horses which were unsuitable for Army purposes, and he thought it would be well to set up some system of local registration of suitable horses by veterinary surgeons, who would communicate with the owners when the Government wanted to make purchases. Buyer and seller would thus be brought into a position which would be mutually advantageous. The buyer ought to be a man capable of judging horses in the rough.

Mr. Acland (Cornwall, Camborne, Min.) did not think the Secretary of State had meant that the Army buyer was less capable of judging horses than the middleman was, but the Army buyer certainly found it more difficult to deal with the farmer than the middleman did. A farmer would ask from the Army buyer a price which he knew it would be absurd to propose to a middleman.

Mr. Munro-Ferguson said the scheme was regarded by the most competent agriculturists in Scotland as inapplicable to that country. Light horse-breeding was not, in their opinion, of sufficient agricultural importance to warrant money being taken from the Development Grant for the purpose. This was a War Office scheme upon which the agriculturists should have been consulted. He would like to see the Army Estimates increased with regard to remounts and in some other respects, but protested against the Development Grant, which ought to be allocated to agriculture, being used indirectly to supply Army needs that did not figure on the Army Estimates.

Mr. O'Grady (Leeds, E., Lab.) protested against £40,000 being allocated in this direction, and said he was going to vote against the Estimate altogether. The Development Act was passed for purposes quite different from horse-breeding, and he failed to see how the Development Commissioners could properly apply their funds for horse-breeding. If the War Office wanted more horses, let it be done with War Office money. The Development Act was passed for the economic development of our own country and not to breed horses for foreign countries to buy. He did not think £40,000 should be given by the State to horse-breeders. It was State Socialism of horses (laughter) and horse-breeders. When the Labour Party voted for the Development Act they never intended the grant to be applied in this way. (Labour cheers.)

Viscount Castlereagh thought that the last speaker would live to regret the speech just made. If he would interview tenant-farmers in different parts of the country he would find tenant-farmers often got a part of their living by breeding horses, and their best customer was the Army. The difficulty was that the Secretary for War was handicapped by the prices he was allowed to give, and many of the best-bred brood mares went out of this country. Some encouragement ought to be given to farmers to keep all their best brood mares and foal fillies in this country. (Hear, hear.) He knew a large landowner in the Midlands who had made it a practice to make a present of brood mares to the tenant-farmers on his estate, and when, after ten years, he took a census of brood mares, he found their numbers had decreased. That showed that many filly foals produced by these mares had left the district and gone abroad. He urged upon the hon. baronet the importance of husbanding the supply of mares in this country and of encouraging the tenant-farmers to keep them. (Hear, hear).

Mr. Lane-Fox (Yorks, W.R., Barkston Ash, Opp.) believed that all through the country there was a general feeling of gratitude to the Board of Agriculture and the War Office for the way in which they had launched this scheme and endeavoured, more especially, to secure local sympathy for carrying it out. (Hear, hear.) If the Board of Agriculture gave the local committees so much

money to spend and then left them a free hand he was sure they would get good results. He also thanked the War Office for the steps they were taking to give prizes at local shows. He believed that method of bringing the buyer into actual contact with the producer would succeed. Farmers would realize that it gave them an opportunity of bringing their animals under the eye of the Government. As to the question of the exportation of horses, he believed that the more foreign buyers who came to buy the more good horses would be produced here. So long as farmers could make horse-breeding pay, so long they would go on breeding, and he hoped the Board of Agriculture would not be discouraged if their new scheme was not an immediate success. They were trying to revive what was rather a dying industry, and for a few years they might experience some difficulty. He thought perhaps rather too much was being done in the way of encouraging stallions and hardly enough in the way of encouraging mares. The Board were making the premiums dependent on the number of mares served, and it was a question whether they would be able to find the requisite number of mares. He would prefer to see rather less given to stallions and rather more to mares. (Hear, hear.) He thought the proposal for the free registration of stallions a most valuable one.

Mr. J. WARD (Stoke-on-Trent, Min.) said the sentiment of patriotism was often made to cover particular interests, and in this matter of development grants the landed interest had stolen a march on those who supported the development scheme as a method of encouraging industrial enterprise. The Secretary for War had stated that the Army only required 3,000 horses annually, and it was ridiculous to suggest this was in preparation for war, which was not anticipated. The Development Commission was set up upon the understanding that, among other objects, it would assist employment in agriculture, and he protested against this raid on the fund by the Board of Agriculture in the landed interest. He wished to know what was to be the ultimate expenditure in this direction. The hon. baronet opposite was ever ready to oppose the use of State money for the improvement of social conditions, except when the interests of his friends were concerned.

Sir R. BAKER (Dorset, N., Opp.) said the hon. member for Stoke confused tenant-farmers with landlords. The vast majority of the horses in the country were bred by tenant-farmers, not by landowners. It was necessary to increase the supply of horses in order that there might be a large reserve for the Army. The moment mobilization came, nearly all the horses of the Territorial Force would be taken by the Regular Army. He thought the Secretary of State for War might do more to encourage farmers who joined the Yeomanry by purchasing horses after the Yeomanry training. He hoped that an experimental breeding station would be set up, for he was inclined to think that for Army purposes a heavier class would be more suitable.

Sir F. CAWLEY (Lancs, Prestwich, Min.) thought this money should not come out of the Development Grant, but out of the Army vote. The best way to encourage the breeding of horses was for the War Office to pay a higher price for those they purchased.

Major ANSTRUTHER-GRAY (St. Andrews Burghs, Opp.) welcomed the grant as a very great step in the right direction. The horse was disappearing from the streets of London, and unless steps were taken to encourage the breeding of horses, they would soon be faced with a very serious dilemma. It would be a very good thing if they could encourage our own people to keep good mares from being sent abroad. He did not want this £40,000 spent in supplying horses for the troops of foreign nations, and, as far as he could see, no precaution was taken to prevent that happening. (Hear, hear.)

Mr. T. E. HARVEY (Leeds, W., Min.), regarding this as primarily an Army question, protested against the funds of the Development Commission being used for a purpose for which they were not originally intended.

Sir E. STRACHEY: I have already assured the Committee that the breeding of horses for the Army is not the primary object. It is only a subsidiary one. It is that the Army may be a good customer of ours.

Mr. T. E. HARVEY thought the speeches on both sides of the House, and the presence throughout most of the debate of the Secretary of State for War Office, and the Financial Secretary to the War Office, proved that it was primarily an Army question.

Sir E. STRACHEY: Certainly not, certainly not.

Donations to R.C.V.S.

The Secretary of the Royal College of Veterinary Surgeons desires to acknowledge the receipt of further donations to the College funds, from Messrs.

H. G. Bowes, Leeds	£1	1	0
T. G. Heatley, Woodbridge	1	1	0
A. Holl, New Buckenham, Attleborough	1	1	0
W. Perryman, London	1	1	0
G. H. Locke, Manchester	1	1	0
Amount previously acknowledged	45	3	0
	£50	8	0

Fellowship Degree.

NEXT Examination, May 13th, 1911. Theses to be received April 15th, 1911. Particulars on application to the Secretary, R.C.V.S., 10 Red Lion Sq., W.C.

ARMY VETERINARY SERVICE.

Extract from *London Gazette*,

WAR OFFICE, WHITEHALL, Feb. 21

CAVALRY.

2nd Life Guards.—Vet.-Capt. E. P. J. Barry to be Vet-Maj. Dated Dec. 5.

ARMY VETERINARY CORPS.

T. J. Faithfull-Davies to be Lieut. (on probation). Dated Feb. 22.

Capt. H. E. Gibbs, A.V.C., at Woolwich, is to be appointed Deputy Assistant Director of the Army Veterinary Service.

His Majesty the King held a Levée on Tuesday, 21st inst., at St. James' Palace. The following presentations to the King were made, the names having been previously left at the Lord Chamberlain's Office, and submitted to His Majesty for approval:—

* * * *

Col. C. E. Nuthall, A.V.S., on promotion and appointment to Staff, by the Chief of the Imperial General Staff, in the absence of the Inspector-General of the Forces.

Vet.-Capt. C. H. Hylton Jolliffe.

OBITUARY.

GEORGE BARROW, M.R.C.V.S., Newmarket.

Graduated, Lond: Dec., 1873.

Mr. Barrow was a son of the late Richard Barrow, veterinary surgeon, who practised in partnership with his more famous brother, William Barrow, one of the leading veterinary surgeons of his time. The deceased gentleman had for many years an extensive practice at Newmarket, and was one of the leading supporters of

coursing at Newmarket, and of the old champion meeting.

Death took place at his residence, at Newmarket, somewhat suddenly, on Tuesday, 21st inst. Mr. Barrow was for many years veterinary surgeon to King Edward's racehorses at Egerton House, and in his time had the professional care of many famous racehorses. Mr. Barrow was about 69 years of age. He was a widower, and left no family.

His death recalls a libel action which created much interest 31 years ago. He was engaged to attend the late Duke of Westminster's racehorse Bend Or, which was one of the favourites for the Derby, and a Turf writer in a London daily paper suggested that Mr. Barrow had administered a wrong medicine to the horse just before the race. Mr. Barrow took proceedings against the newspaper for libel, and was awarded substantial damages. Among the Royal horses of which he had charge were Diamond Jubilee, the "triple crown" winner Persimmon, Minoru, Florizel II, and Thais. Mr. Barrow took great interest in the breeding of fox-terriers and Pekinese dogs, and secured several prizes with both breeds. He also owned some very good trotting ponies.

An inquest was held at Newmarket on Wednesday.

Frank Gibbons, a manservant, said that since his wife's death, some years ago, Mr. Barrow had suffered much from insomnia, and he had been accustomed to take sleeping draughts. For some time he had found that these had lost their effect, and he had remarked that he would mix something for himself. On Monday evening the witness, noticing his master's unusual drowsiness, and remembering his remarks about mixing a sleeping draught, looked round, and in the lavatory discovered an empty bottle labelled chloroform. Mr. Barrow died on Tuesday. He had ordered his horse and trap for Tuesday morning, stating that he had to go to Mr. Marsh's (the King's private trainer) to put some cloths on some of the Royal thoroughbreds.

Dr. Erne Last Fyson, Newmarket, said that Mr. Barrow suffered from heart affection. The witness concluded from his appearance that Mr. Barrow had taken chloroform on Sunday and a small dose on Monday to enable him to get some sleep, and even a small quantity to a man in the deceased's condition would be dangerous. Death was due to heart failure, probably accelerated by taking chloroform.

The jury returned a verdict of "Death from misadventure."—*The Times.*

PUBLIC HEALTH SERVICE DIRECTORY.

Sir,

The 1911 issue of this directory, which is due to make its appearance early in April, will contain as last year the names of all Veterinary Officers of County, City, Borough and District Health Authorities in England, Scotland, and Wales, as far as they can be ascertained.

Forms for personal entries have already been sent out, but it is possible that some Veterinary Officers have been overlooked. Would you be so good as to request any of your readers concerned, who have not already supplied us with the particulars required, to send us a letter or postcard addressed to 36, Whitefriars Street, E.C., containing their full names, postal, telephone, and telegraphic addresses, professional qualifications, present and past appointments, and a note of any books or contributions to journals written by them? If they will supply the details asked for in the order named they will materially reduce the work of the Editor.

I may add that the veterinary section of the directory appears to have been much appreciated, and to have proved very useful not only to veterinarians but to their colleagues in other branches of the Public Health Service.—Yours faithfully,

HODGETTS, LTD.

Several communications are unavoidably held over.

DISEASES OF ANIMALS ACTS 1894 TO 1910, SUMMARY OF RETURNS.

Period.	Anthrax. Outbreaks Confirm'd	Anthrax. Outbreaks Reported	Anthrax. Animals Confirm'd	Anthrax. Animals Reported	Foot-and-Mouth Disease. Outbreaks	Foot-and-Mouth Disease. Animals.	Glanders (including Farcy) Outbreaks	Glanders (including Farcy) Animals.	Counties Affected Animals Attacked	Sheep Scab. Outbreaks	Swine Fever. Outbreaks.	Swine Fever. Slaughtered. *
GT. BRITAIN. Week ended Feb. 18	23	...	27	...			6	36		30	39	459
Corresponding week in 1910	...	29	...	34			3	17		31	35	352
Corresponding week in 1909	...	29	...	68			12	35	Hertford 1	29	24	113
Corresponding week in 1908	...	28	...	41	...	...	17	39		47	17	105
Total for 7 weeks, 1911	155	...	171	...	...	...	34	111	London 34 Middlesex 1	211	252	2805
Corresponding period in 1910	...	208	...	246			46	150		214	157	1189
Corresponding period in 1909	...	197	...	278			71	189		265	210	1439
Corresponding period in 1908	...	187	...	266	1	103	115	415		412	195	876

Board of Agriculture and Fisheries, Feb. 21, 1911.

	Parasitic Mange (outbreaks)											
IRELAND. Week ended Feb. 18	...	...	...	...	...	...	4	22	2	67
Corresponding Week in 1910 ...	...	...	...	...	...	...	1	22	1	59
Corresponding Week in 1909 ...	...	...	...	...	...	...	2	24	...	...
Corresponding Week in 1908 ...	...	...	...	...	...	...	1	28	2	44
Total for 7 weeks, 1911 ...	3	3	...	...	...	...	19	148	23	408
Corresponding period in 1910 ...	2	2	...	...	...	...	16	157	6	215
Corresponding period in 1909 ...	1	1	...	...	...	...	18	116	3	12
Corresponding period in 1908 ...	2	2	...	...	...	...	4	164	22	408

Department of Agriculture and Technical Instruction for Ireland, (Veterinary Branch), Dublin, Feb. 20, 1911

NOTE.—The figures for the Current Year are approximate only.

* As Diseased or Exposed to Infection

Veterinary Societies—Addresses.

ASSOCIATION OF VETERINARY OFFICERS OF HEALTH
Pres: Mr. William Robb, F.R.C.V.S., Glasgow.
Hon, Sec. & Treas. Mr. A. M. Trotter, M.R.C.V.S., Moore Street, Abattoir, Glasgow,

BORDER COUNTIES V.M.S.
Pres: Mr. J. W. Hewson, M.R.C.V.S., Wigton
Hon. Sec. (pro tem.): Mr. F. W. Garnett, M.R.C.V.S., Dalegarth, Windermere
Meetings, Second Friday of Feb., June, and October

CAPE OF GOOD HOPE V.M.S.
Pres. Mr. J. D. Borthwick, M.R.C.V.S., Cape Town
Hon. Sec. & Treas. Mr. R. W. Paine, F.R.C V.S

CENTRAL V.S.
Pres. Mr. W. S. Mulvey, F.R.C.V.S., Skansen, Baddow Road, Chelmsford
Hon. Sec: Mr. H. A. MacCormack, M.R.C.V.S., 122 St. George's Avenue, Tufnell Park, N.
Meetings, First Thursday in each month, except August and September, 10 Red Lion Square, Holborn, at 7 p.m.

CENTRAL CANADA V.A.
Hon. Sec: Mr. A. E, James, Ottawa

CENTRAL V.A. OF IRELAND.
Pres: Mr. J. F. Healey, M.R.C.V.S., Midleton
Hon. Sec. Mr. E. C. Winter, F.R.C.V.S., Queen st., Limerick
Treas: Mr. P. J. Howard, M.R.C.V.S., Ennis

EASTERN COUNTIES V.M.A.
Pres: Mr. T. G. Heatley, M.R.C.V.S., Woodbridge
Hon. Sec. & Treas: Mr. Sidney Smith, Junr., M.R.C.V.S. 37 High Street, Lowestoft
Meetings, Second Tuesday, Feb., July and Sept.

GLASGOW V.M.S.
Pres. Principal McCall.
Hon. Sec. Mr. J. Gibson, 16 Overdale Gdns, Langside, Glas.

VET. MED. ASSN. OF IRELAND.
Pres; Mr. J. Holland, M.R.C.V.S., Athy
Hon. Sec: Mr. A. Watson, M.R.C.V.S., Municipal Buildings, Cork Hill, Dublin
Hon. Treas: Prof. Craig, M.A., Royal Vety. Coll., Dublin.

LANCASHIRE V.M.A.
Pres: Mr. J. W. Brittlebank, M.R.C.V.S., Town Hall, Manchester
Hon. Treas: Mr. W. Packman, M.R.C.V.S., Bury, Lancs.
Hon. Sec. Mr. G. H. Locke, M.R.C.V.S., Grosvenor-street, Manchester
Meetings, 1st Thursday in April, June, Sept., & Dec.

LINCOLNSHIRE V.M.S.
Pres. Mr. T. Holmes, M.R.C.V.S., Bourne
Hon. Sec: & *Treas*: Mr. C. W. Townsend, F.R.C.V.S., Long Stanton, Cambridge
Meetings, Second Thursday Feb., June, and October

LIVERPOOL UNIVERSITY V.M.S.
Pres: Mr. W. Woods, F.R.C.V.S., Wigan
Hon. Secs: Prof. H. E. Annett, The University, Arnold Richardson, M.R.C.V.S., 111 Arundel Avenue, Liverpool
Meetings, May, July, October, January.

VET. ASSN. OF MANITOBA.
Pres: Dr. W. A Dunbar, Winnipeg
Hon. Sec. & Treas: Dr. F. Torrance, Winnipeg

MIDLAND COUNTIES V.M.A.
Pres: Mr. John A. Gold, M.R.C.V.S., Redditch
Hon. Sec: Mr. H. J. Dawes, F.R.C.V.S., Camden House, High-st., West Bromwich
Meetings, Second Tuesday, Wednesday, Thursday, and Friday alternately in Feb., May, Aug. and Nov

NATAL VETERINARY MEDICAL ASSOCIATION.
Pres. Mr. H. Watkins Pitchford, Govt. Bacteriologist, Pietermaritzburg
Hon. Sec. & Treas. Mr. J. B. Collyer, Vety. Inspector Natal Police, Pietermaritzburg

NATIONAL VET. ASSOCIATION.
Pres: Mr. T. Salusbury Price. M.R.C.V.S. 30 Brixton Hill, S.W.
Sec: Mr. William Hunting, F.R.C.V.S. London, S.W.
Treas: Prof. G. H. Wooldridge, F.R.C.V.S., Ryl. Vet. Coll., Camden Town, N.W.

NATIONAL VETERINARY BENEVOLENT & MUTUAL DEFENCE SOCIETY.
Pres: Mr. W. A. Taylor, F.R.C.V.S., Brick-st, Manchester
Treas: Mr. J. B. Wolstenholme, F.R.C.V.S., Quay-street, Manchester
Hon. Sec: Mr. G. H. Locke, M.R.C.V.S. Grosvenor Street, Oxford-st., Manchester

NORTH OF ENGLAND V.M.A.
Pres: Mr. E. R. Gibson, M.R.C.V.S. 27 Marlborough-street, Seaham Harbour
Hon. Sec: T. T. Jack, M.R.C.V.S., 3 Elmwood Ter, Sunderland
Meetings, Third Friday, Feb., May, Aug. and Nov.

NORTH OF IRELAND V.M.A.
Pres: Mr. F. W. Emery, F.R.C.V.S., Belfast
Hon. Sec; Mr. J. S. A. Jordan, M.R.C.V.S., Belfast
Hon. Treas; Mr. J. A. Thompson, F.R.C.V.S., Lurgan

NORTH OF SCOTLAND V.M.S.
Pres: Vet. Capt. Clement Baxter, M.R.C.V.S., Elgin
Hon. Sec. & Treas: Mr. G. Howie, M.R.C.V.S. Alford, Aberdeen
Meetings, Last Saturday in January and August

NORTH WALES V.M.A.
Pres: Mr. R. S. Rowlands, M.R.C.V.S., Abergele
Hon. Sec. Mr. L. W. Wynn Lloyd, M.R.C.V.S., Carnarvon
Hon. Treas. Mr. R. Jones, M.R.C.V.S., Towyn, Merionethshire
Meetings, First Tuesday, March and September

ONTARIO V.A.
Pres: Mr. J. H. Tennent, V.S., London, Ontario
Sec: & *Treas*: Mr. C. H. Sweetapple, V.S., Toronto, Ontario

ROYAL COUNTIES V.M.A.
Pres: Mr. E. J. Mellett, M.R.C.V.S., Henley-on-Thames
Hon. Sec. & Treas: Mr. G. P. Male, M.R.C.V.S., Reading
Meetings, Last Friday, Jan., April, July and Nov.

ROYAL SCOTTISH V.S.
Pres: Mr. Reid, M.R.C.V.S., Auchtermuchty.

ROYAL VETERINARY COLLEGE M.A.
Pres: Dr. Lander, D.Sc.
Hon. Sec: Mr. S. Gorton, M.R.C.V.S.
Assist. H.S. Mr. T. J. Davis.

SCOTTISH METROPOLITAN V.M.S.
Pres: Mr. James Peddie, F.R.C.V.S., Dundee
Hon. Sec: Mr. A. Gofton, M.R.C.V.S., Ryl. Dick Vet. Coll.

SOUTHERN COUNTIES V.S.
Pres: Mr. W. Burt, Junr., F.R.C.V.S., Brighton
Hon. Sec: Mr. J. Alex. Todd, M.R.C.V.S., Worthing
Hon. Treas: Mr. E. W. Baker, M.R.C.V.S., Wimborne
Meetings, Last Thursday, Mar., June and Sept.

SOUTH DURHAM AND NORTH YORKSHIRE V.M.A.
Pres.: Mr. G. R. Dudgeon, M.R.C.V.S., Sunderland
Hon. Sec: Mr. W. Awde, F.R.C.V.S., Stockton-on-Tees.
Meetings, First Friday, Mar., June, Sept. and Dec.

TRANSVAAL V.M.A.
Pres: Dr. Theiler, C.M.G.
Hon. Treas: Mr. J. M. Christy, M.R.C.V.S., D.V.S. Krugersdorp
Hon. Sec: Mr. J. G. Bush, M.R.C.V.S., Piet Retief, Transvaal

VICTORIA VETERINARY BENEVOLENT FUND.
Pres. Mr. E. Coleman, Crofton, Tooting Graveney
Hon. Sec. & Treas: W. Freeman Barrett, Esq. Fountain Court, Temple, E.C.

WESTERN COUNTIES V.M.A.
Pres: Mr. A. J. Down, M.R.C.V.S., Sampford Peveril
Hon. Sec. Mr. W. Ascott, M.R.C.V.S., Bideford
Hon. Treas: Mr. P. G. Bond, M.R.C.V.S., Plymouth
Meetings, Third Thursday, March, July and November

WEST OF SCOTLAND V.M.A.
Pres: Mr. Hugh Begg, M.R.C.V.S., East Kilbride
Hon. Sec: & *Treasr*: Robert Mitchell, M.R.C.V.S., 1291 Argyll Street, Sandyford
Meetings, Second Wednesday, May, Oct. and January.

YORKSHIRE VET. ASSOCIATION
Pres: Mr. J. W. Lazenby, M.R.C.V.S., Tadcaster
Hon. Sec; Mr. J. Clarkson, M.R.C.V.S., Garforth, nr. Leeds
Hon. Treas: Mr. A. McCarmick, M.R.C.V.S., Kirkstall-road, Leeds

INTESTINAL FISTULA.

Mr. W. Hunting's case.